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TRACING AND SKETCHING  
LESSONS IN GEOGRAPHY



GILLAN



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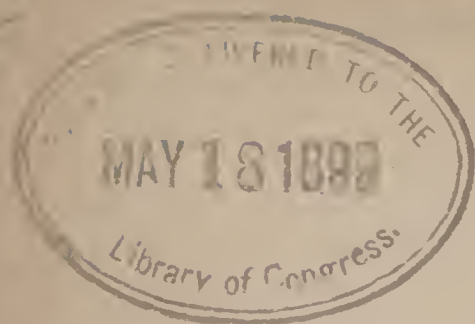
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# TRACING AND SKETCHING

## LESSONS IN GEOGRAPHY

BY

S. Y. GILLAN



MILWAUKEE  
S. Y. GILLAN & COMPANY  
1897

31210

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Press of Standard Printing Co.,  
118-124 Michigan St., Milwaukee, Wis.

58412

1897. ✓

# INTRODUCTORY NOTE.

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This is not a text-book, neither is it an outline of the body of knowledge to be taught in geography, nor a treatise on methodology.

Some years ago the writer prepared an outline of a course in geography for common schools for publication in the Manual for Wisconsin public schools. In exemplifying and elucidating before normal school classes and teachers' institutes the plan of work therein set forth and called the Tracing and Sketching Method, these lessons were developed. During the past four years they were published as a series in THE WESTERN TEACHER, and the demand for them soon exhausted the supply of back numbers containing the lessons, and indicated that many teachers of geography found them helpful.

In revising the lessons for publication in this form, substantially the same plan of arrangement and presentation is retained which was followed in the articles in THE TEACHER. In some places logical order and systematic completeness are purposely ignored in order to get the nearer to the teacher in the presentation of *matter and method*. Suggestions as to pedagogical theory and teaching practice are thrown in at such points as seem most likely to make them helpful to the teacher.

It should be kept in mind that these lessons are intended to be used in connection with the second or advanced text-book of any series. The author believes that it is not too much to expect that the pupil who takes the common school course in geography should know the facts here presented. The difficult question for the teacher to decide is what to teach and what to omit in the great mass of



material presented in the text-book, much of which is useful for reference only. These lessons attempt to answer that question. For any particular class not strong enough to master all that is here presented, in the thorough manner insisted upon, it may be shortened by omitting the less important facts and places; but whatever is decided upon as the body of knowledge to be taught, the teacher should faithfully adhere to the four rules given on page 10.

Why do the lessons begin with Europe? The reason will be made plain to the teacher who follows the series. But those who prefer can begin at any other point. Why North America and Europe receive so much greater attention than the other continents is a question of pedagogic perspective involved in the larger question, what knowledge is of most worth?'

# TRACING AND SKETCHING LESSONS IN GEOGRAPHY.

## EUROPE.

### I.

#### SCANDINAVIA AND THE BALTIC BASIN.

Let the pupils in the advanced class in common school geography open their books at the best map they can find of Northern Europe, and note the places indicated on the sketch map on the next page.

This all at one lesson? No; enough is given in this map and list for more than a month's work, with the brightest class you ever had. The first seven places will be enough for the first lesson; for they are to be learned so well that the names can be recited from memory in either direction, or beginning at any point, with no map or sketch in sight. Each pupil should be able to make at the board or with pencil a good sketch of the coast line, locating all the places learned. Send some to the board each day to draw sketches, while others recite orally, each being ready to go on from where the one reciting may be stopped.

The first lesson may end with the Naze, the second with Tornea River, the third with Lake Onega, the fourth with Lubec. Review and drill for two or three days or as long as may be necessary to *master* the map work thus far, and to impress on the class the fact that everything you assign must be learned. Now

assign the rest at one lesson, review and drill, and practice making the sketch. *You* should master this also, so that you may be able to check errors in the sketches which the children make, or note the slips in their oral work without any book or map in sight. If you do this faithfully you will be the less likely to over-





burden the children with too long lessons; besides, in this way you will soon feel so much stronger in your geographic knowledge that you will not regret the time and effort.

- |  |                             |
|--|-----------------------------|
| 1. North Cape.                           | 26. Lake Ladoga.            |
| 2. Hammerfest.                           | 27. Svir River.             |
| 3. Loffoden Islands.                     | 28. Lake Onega.             |
| 4. Maelstrom.                            | 29. Gulf of Riga.           |
| 5. Trondhjem Fiord and City.             | 30. City of Riga.           |
| 6. Bergen.                               | 31. Duna River.             |
| 7. The Naze.                             | 32. Valdai Hills.           |
| 8. Skagger Rack.                         | 33. Gulf of Dantzic.        |
| 9. Christiania.                          | 34. Vistula River.          |
| 10. Glommen River.                       | 35. Dantzic.                |
| 11. Cattegat.                            | 36. Warsaw.                 |
| 12. Gotha River.                         | 37. Carpathian Mountains.   |
| 13. Gottenburg.                          | 39. Oder River.             |
| 14. Lake Wener.                          | 40. Stettin.                |
| 15. Island of Sealand and<br>Copenhagen. | 41. Breslau.                |
| 16. Baltic Sea.                          | 42. Lubec.                  |
| 17. Lake Malar.                          | 43. North Sea.              |
| 18. Stockholm.                           | 44. Elbe River.             |
| 19. Upsal.                               | 45. Hamburg.                |
| 20. Gulf of Bothnia.                     | 46. Havel River and Berlin. |
| 21. Tornea River.                        | 47. Leipsic.                |
| 22. Finland.                             | 48. Prague.                 |
| 23. Gulf of Finland.                     | 49. Weser River.            |
| 24. Kronstadt.                           | 50. Bremen.                 |
| 25. Neva River and St. Petersburg.       | 51. Zuyder Zee.             |
|  | 52. Amsterdam.              |

“But this is mere mechanical routine, work with dots, lines and words—*lifeless forms*.” Yes, so it is. Adam was a lifeless form, too, until the breath of life was breathed into him.

“The study of geography should give mental pictures of the earth as the home of man—concepts of realities, not of their mere symbols. Europe is not a mesh of dots and lines.” Yes, yes, Mr. Enthusiast and Miss Normalite, we catch your idea and have no objection to it if only you will put a bridle on it so it won’t run away with you. Remember your “mental pictures”

must not be in the clouds; they must have something more of terrestrial locus and anchorage than fairy stories or they will serve no higher purpose. Which shall the child learn first, *how* the Laplanders live or *where* they live? *What* the Maelstrom is or *where* it is? It is the problem of boring the tunnel through the sand-hill—shall we make the hole or build the encasement first?

In the next lesson are given some interesting facts about the places noted in this map and list. Have your pupils master the map work here presented; when they get the pictures they will then know where to locate them.

## II.

### SCANDINAVIA AND THE BALTIC—CONTINUED.

Are the pupils able to produce at the board or in pencil sketch the map forms as given on page two? Can they recite the rivers, cities, etc., forward or backward from memory in the order in which a traveler would reach them in sailing around the coast and up the rivers? Can they name anything shown in this map when pointed out at random by the teacher, and can they point quickly to places named by the teacher? Until they can do this they are not ready to go on.

If any teacher should find the work as outlined in the sketch maps too heavy for a particular class, it can easily be shortened by omitting the places of less importance. If the list of 52 places in Scandinavia, western Russia and eastern Germany needs to be pruned on this account, the following may be omitted: Nos. 4, 5,

7, 10, 12, 14, 19, 21, 24, 27, 28, 48. This will reduce the work by about one-fourth. But it is believed that pupils in the sixth or seventh grades will easily do Europe as fully as the work is presented in these lessons without any pruning.

Thus far, the work has been map forms and names only; but as the method presupposes a fair notion of what map forms represent and of what geographic terms mean, they will in some degree "represent realities" without conscious effort on the part of the teacher to keep the thing and not the sign before the child's mind. But no harm will result should the pupil see only the forms, the dots and lines, for days and even weeks at a time while mastering the map; and the ingenious teacher can arouse enthusiastic interest in the map itself. Let them see that Scandinavia and north-western Russia are shaped like a big dog, his tail in the White Sea, his nose in the North Sea, his front feet in the Baltic, and the Gulf of Bothnia under his belly; Bergen is the dog's eye, the Naze his nose, and Christiania the bell under his throat; Trondhjem is just back of his ears, and the Loffoden Islands are a swarm of flies about to alight on his back. Or, to be more prosaic, let them note that the peninsula has two southern lobes, the Swedish extending much farther south than the Norwegian; that the mountains are much nearer the west shore than the east, hence a difference in the current of the rivers in Sweden and Norway; that the direction of the coast changes at Trondhjem; that Bergen, Christiania, Stockholm and St. Petersburg are nearly in the same latitude; that Denmark, Jutland,



juts in between the two lobes; that a chain of lakes extends from the Gulf of Finland to the White Sea, etc.

[There are some *facts* noted in the latter part of this lesson; this parenthesis is merely pedagogical. The teacher who follows the tracing and sketching method should faithfully observe the following rules:

1. Carefully determine beforehand, each day, what work you will assign.
2. Assign only those places about which you know something besides their location.
3. Require only such places and facts to be learned as seem to you so important that the pupils should know them "not for school, but for life."
4. Cultivate independence of the text-book so that you can assign lessons and conduct recitations without consulting it.

The observance of the foregoing rules, especially the second and fourth, may cause the daily lessons to be short; but that is one purpose for which the rules are given. Why should we ask a child to learn "for keeps" a fact which the teacher cannot state without referring to a book?]

The study of the descriptive text and the supplementary work which pupils and teacher will be able to contribute from their reading will probably bring out the following facts:

*North Cape* is the most northern point of Europe. Read Longfellow's "Discoverer of the North Cape."

*Hammerfest* is the most northern city in the world. (The existence of some little stations or villages in Greenland farther north, does not vitiate this statement.)

*Maelstrom*, a great whirlpool, has become a synonym for dangerous, evil influences; it is not so dangerous as formerly supposed.

*Trondhjem*, on the largest Norwegian fiord; old capital. The kings of Norway are crowned here.

*Bergen*, a modern business city, a great fish market.

*North Sea* and *Skagger Rack* are rough and billowy.

*The Naze*, or *Lindennaze*, the "Lime Nose," a great mass of limestone, forms the southern promontory of Norway.

*Christiania*, the capital and metropolis of Norway.

*Glommen*, the largest river of Norway.

*Scandinavian Mountains*, the backbone or watershed of the peninsula.

*Gottenburg*, the most important commercial center of southern Sweden.

*Stockholm*, "The Venice of the North," built partly on islands, a beautiful and substantial city, the most important on the peninsula.

*Lake Malar* contains about 1,400 islands, and is one of the most beautiful lakes in the world.

*Upsal*, the seat of the national university, one of the greatest centers of learning in Europe.

*Tornea*, a boundary river.

*Finland*, fen land, marsh land, swamp land. See the great number of lakes.

*Kronstadt*, on an island; a strong naval station, the "key" to

*St. Petersburg*, one of the greatest cities of the world, built originally in a swamp. A gay capital in winter. Why?

*Ladoga*, the largest body of fresh water in Europe.

*Valdai Hills*, the watershed of the great Russian plain, but only a thousand feet high.

*Warsaw*, the capital of old Poland.

*Stettin* has a famous anchor foundry where the anchors for the German navy are made.

*Lubeck, Hamburg and Bremen* are free cities, or "Hanse towns." Read in the cyclopedia about the Hanseatic League.\*

The *Skaw* is a dangerous point near which many vessels are wrecked every year.

In treating important cities like *Copenhagen* or *Berlin* use pictures and descriptions to impress the distinctive features of the cities.

*Magdeburg* gives name to the Magdeburg cups or hemispheres. What are they, and why so called?

*The Hartz Mountains* are noted as the scene of many ghost, witch and fairy stories in German folk-lore.

*Leipsic* is the most noted center of the book manufacturing industry in the world.

*Prague*, the capital of Bohemia. Note that Bohemia is almost surrounded by mountains. Looking at the map it seems that the Elbe flows *up over* the mountains on the north of Bohemia. When the pupils notice this, give them a lesson on water gaps, what they are, how they appear and how they originated.

*Bremen and Hamburg* are the great German ports for foreign commerce. From New York we can take an ocean steamer direct to either of these cities. Teach the fact that only a few ports in each country have foreign commerce.

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\* A cyclopedia is very serviceable for use in the geography class; several good ones are now on the market at moderate cost.



*Amsterdam*, the old capital of Holland, famous for diamond cutting.

*The Hague* means the hedge, from an old fortification in the form of a ditch, a bank of earth and a hedge growing upon it. It is the capital of Holland.

Now that the foundation is laid, the mental pictures will have a local habitation. By means of vivid description of scenes in the most interesting regions the constructive imagination may be trained to "see" the glaciers; the jagged coast; the storm-tossed waves on the shore; the pine forests; the muddy mouths of the Vistula and Oder; the rugged Carpathians; the King's castle in Stockholm where he resides nine months, and in Christiania where he must stay three months each year; the processes of dressing, curing, packing and shipping fish at Bergen, etc. But the temptation here is to over-do the illumination of this kind and leave a confused jumble in the pupils' mind. Definite map work, thoroughly learned and frequently reviewed furnishes a solid anchorage for the "pictures."

### III.

#### GENERAL FACTS OF INTEREST.

The west shore of Norway is high and rocky, and abounds in fish; in some places the fish are so numerous that a pound weight of lead on a plumb-line will not sink through them.\*

On the cliffs along the coast, sea fowl, chiefly gulls, are so numerous as to give the appearance of snow-covered hills. The people of northern Norway shoot them, bury their bodies, feathers and all, in the earth and in the winter feed them to the cows. (In cold climates the cow is not altogether herbivorous.)

At Hammerfest from Nov. 18 to Jan. 22 the sun does not rise; from May 14 to July 29 it does not set.† What is meant by the midnight sun? The fiords are

\*This fish story is given on the authority of the Rev. J. M. Buckley, author of "The Tzar, The Nihilist, and The Land of The Midnight Sun."

†See Gillan's Lessons in Mathematical Geography, page 52.

not so salty as the ocean. Why? Which has the higher level, Lake Ladoga or Lake Malar; Lake Wener or Trondhjem Fiord? Why?

A slight subsidence would make an arm of the ocean extending from the White Sea to the Gulf of Finland. The land in the northern part of the Gulf of Bothnia is slowly rising at the rate of three feet per century. Therefore, what natural division was the Scandinavian peninsula formerly?

#### THE BASIN OF THE BALTIC.

Put a pencil on the map at the southern point of Sweden, and without removing it from the paper or drawing across any river or natural body of water, bring it around into Denmark. You have outlined the basin of the Baltic. The traveler who should make the journey thus indicated would see no mountains after leaving Norway and Sweden until reaching the Carpathian mountains on the south. One of the noteworthy features of this basin is that it has a very low rim or watershed through so large a part of its extent.

This area comprises one-fifth of Europe, and includes 200 rivers. Upon it there falls a larger amount of snow than upon any other equal area of the inhabited world. In summer the rainfall is also very great, and the climate being cool, the evaporation is relatively small. Consequently a great quantity of water is poured into the Baltic. Much mud is washed down by the many rivers, and the river mouths are constantly pushing out farther into the sea by the filling up process.

The Baltic is a shallow sea. Observe the narrow

and crooked outlet to the ocean through three straits or "belts." Baltic comes from a word meaning belt.

It has been ascertained by measurements that the bottom of the Baltic, especially in the northern part, is gradually rising; hence it is getting shallower from two causes.

A glance at the map will show that the country east of the Baltic contains many lakes; one of them, Lake Ladoga, is the largest body of fresh water in Europe. It is not difficult to see that if the land were slightly lower in this region, an arm of the ocean would extend from the White Sea southwestward to the Gulf of Finland, as it formerly did when the land was lower than it is now. The ancestors of the seals now found in the Baltic probably entered through the White Sea.

In all ages the Baltic has been famous for the production of amber, which is found chiefly along its southern shore. Amber is a fossilized gum, large pieces of which are washed up on the shore after storms. A few pieces weighing from ten to thirteen pounds have been found, one piece now in the museum at Berlin weighs eighteen pounds. The general introduction of Christianity would lower the market price of amber. The devout Mussulman burning amber at the shrine of Mahomet makes a market for the product of the Baltic mines.

#### THE NORTH SEA COMPARED WITH THE BALTIC.

Unlike the Baltic, the North Sea or German Ocean is deep and turbulent. While there are no tides in the Baltic, there are high tides in the North Sea. A study of the map will show how this can be. The water of the



North Sea is as salty as that of the ocean, but the water of the Baltic contains a much smaller percentage of saline matter. Why? At what season will the water of the Baltic be freshest? Why?

What two important rivers have their mouths on the German coast of the Baltic? What two on the German coast of the North Sea?

These two seas together may be called the northern Mediterranean, and the countries bordering on them are the home of the Germanic or Teutonic races, including the English, Dutch, Germans, Danes and Scandinavians. Just as the older civilizations of Phoenecia, Egypt, Greece, Rome and Carthage clustered around the Mediterranean, so these northern nations have had their double northern sea as a common highway for commerce and war.

Note that the northern coast of Germany lies in a uniform line almost east and west on these two seas, with the exception of one serious break, the Cimbrian or Jutland peninsula, which extends northward from Hamburg about 300 miles. In consequence of this break, vessels from French, English or Dutch ports bound for German or Russian ports on the Baltic must lengthen their round trip by about 600 miles, and brave the dangers of the Skaw and the rough passage of the Skagger Rack and Cattegat. To shorten this trip and decrease its dangers has been a problem for centuries.

#### THE GREAT GERMAN CANAL.

As early as the 13th century efforts were made to cut a canal across the isthmus which joins Jutland to the main-land. A little canal was for many years in operation,



but it was large enough only for small river craft. But when, in 1866, Prussia obtained by conquest from Denmark the provinces of Schleswig and Holstein, which occupy this neck of land (see map), plans were at once adopted for building a ship canal; and when in 1870 the German Empire was established, the plans began to take definite shape. In 1887 Emperor William performed the ceremony of publicly opening the work of making a ship canal which, now completed, ranks as a work of engineering skill, and in commercial importance, with the Suez canal, the Mt. Cenis tunnel or the transcontinental railways. It extends from a point near Kiel to the mouth of the Elbe near Hamburg (see map.) In case of war this canal will be of great use to Germany, for it is large enough to admit the heaviest war vessels, and by means of it the two parts of the German fleet could quickly co-operate in either sea. Both entrances are guarded by fortifications.

The thousands of vessels that annually pass through the sound near Copenhagen, and that at Elsinore used to pay the duty or 'sund-toll' till about thirty years ago, will hereafter mostly pass through the great canal. The increased speed and safety will very greatly increase the marine intercourse between the two German coasts and surrounding countries.

Through the heart of Schleswig-Holstein now passes this great artery of commerce. Kiel will gain what Copenhagen will lose. On fine days, the sound near Copenhagen was formerly whitened by the sails of the merchant navy of northern Europe; but vessels now crowd toward and from the beautiful shores surrounding the

grand inlet of the canal at Haltenau, near Kiel. Those coming from the east disappear in the beautiful beech forests encircling the placid waters of the harbor of Kiel; a few hours later they emerge from the level, low and rich marshland on the west, and ride on the billows of the tide-stirred North Sea. Thus, the beautiful, lake-like Baltic and the everchanging German Ocean are united by the strong bond of commerce.

This canal is lighted throughout its entire length by electricity.

#### HOLLAND.

Spend a lesson or two on this interesting country, Hollow-land, Low Land, Netherlands or Underlands. Note the significance of the name. The dikes in some places from 20 to 40 feet high, keep out the sea. Imagine yourself standing on the ocean shore looking at the water almost level with the point where you stand; on the other side are fields, gardens, houses and streets, away down below you some forty feet. Or imagine yourself in the street of a coast town in Holland *looking up* to the ships at the wharf near the top of the dike 40 feet above you. But rain falls on the land; how does it get out to the ocean? When the feeble minded who never think, but answer in mere words, tell you they "let it out through flood gates" you will have a chance to teach a lesson in physics. When the inquisitive boy wants to know how the dikes were started in the first place, you must be ready to meet him with at least a reasonable suggestion as to how they might have been made. Is any part of our country protected by dikes? (Windmills, pumps.

canals, skating.) But large rivers, notably the Rhine, flow through this "hollow-land"; surely not all the water of the rivers is pumped over the dikes. What then? Dikes are built on either side. How far up the river must these dikes be built? In sailing up the Rhine through Holland one may stand on the boat and look down into the chimneys of the cottages.

#### SUBJECTS FOR ESSAYS.

The Coast of Norway and Holland. Amber. Summer and Winter in Holland. Copenhagen and Berlin compared. (Encourage the reading of books of travel that may be found in the school library and in the homes.)

#### IV.

#### THE RHINE BASIN.

*The Rhine.* Note that it has many mouths. Formerly it flowed into the Zuyder Zee, but that outlet is now nearly choked up. Afterward it flowed through a mouth past Leyden which still receives some of its water.

*Leyden* is the oldest city of Holland. What is a Leyden jar? How were the "Pilgrim Fathers" associated with this city?

*Rotterdam* is an important commercial city.

*The Meuse*, a very sluggish river in its lower course, mingles in the network of streams forming the delta of the Rhine. Teach a little physical geography now concerning the two kinds of river mouths—deltas and estuaries, and what conditions give rise to each.

- |                                  |  |
|----------------------------------|--|
| 1. Amsterdam.                    | 34. Brussels.  |
| 2. Leyden.                       | 35. Waterloo.  |
| 3. Rhine River.                  | 36. Ghent.   |
| 4. Rotterdam.                    | 37. Strait of Dover.                                     |
| 5. Meuse River.                  | 38. Dover.   |
| 6. Liege.                        | 39. Calais.  |
| 7. Sedan.                        | 40. English Channel.                                     |
| 8. Cologne.                      | 41. Seine River.   |
| 9. Moselle River.                | 42. Havre.   |
| 10. Metz.                        | 43. Rouen.   |
| 11. Nancy.                       | 44. Paris.   |
| 12. Coblenz.                     | 45. Versailles.  |
| 13. Ehrenbreitstein.             | 46. Cherbourg.   |
| 14. Bingen.                      | 47. Channel Islands, Jersey,<br>Gurnsey, Alderney, Sark. |
| 15. Mayence.                     | 48. Brest.   |
| 16. Mayne River.                 | 49. Bay of Biscay.                                       |
| 17. Frankfort.                   | 50. Loire River.   |
| 18. Nuremberg.                   | 51. Nantes.  |
| 19. Ludwig's Canal.              | 52. Tours.   |
| 20. Neckar River.                | 53. Orleans.   |
| 21. Heidelberg.                  | 54. St. Etienne.   |
| 22. Stuttgart, Black Forest Mts. | 55. Cevenne Mts.   |
| 23. Strasburg.                   | 56. Gironde River.                                       |
| 24. Basle.                       | 57. Dordogne River.                                      |
| 25. Aar River.                   | 58. Garonne River.                                       |
| 26. Zurich.                      | 59. Bordeaux.  |
| 27. Lake Zurich.                 | 60. Toulouse.  |
| 28. Berne.                       | 61. Languedoc Canal.                                     |
| 29. Mt. St. Gothard.             | 62. The Landes   |
| 30. Falls of Shafhausen.         | 63. Bayonne.   |
| 31. Lake Constance.              | 64. Pyrenees Mountains.                                  |
| 32. Scheldt River.               |  |
| 33. Antwerp.                     |  |

*Liege.* The three European cities most noted for the manufacture of fire arms are Liege, Birmingham and St. Etienne; but Liege manufactures twice as many as both the others.

*Sedan.* Napoleon III was captured here in the Franco-Prussian war in 1870 by the Germans under King William of Prussia, afterward Emperor William. Sedan chairs were invented and made here. What is a sedan chair?

*Cologne.* What is *eau de Cologne*? One of the



most famous cathedrals of Europe is here. It was over 700 years in building and was finished only a few years ago. The devil is said to have furnished the plans to the architect, on the usual conditions which accompany his favors in all the medieval stories in which he helps men. Cologne is nearly as large as Milwaukee.



Thus far in our journey up the Rhine we have been traveling over what is known as its lower course. Above Cologne the country is not so flat, the scenery

becomes more interesting, and old ruined castles are seen on the mountain sides.

*Metz*, on the Moselle, was captured by the Germans in 1870 after a long siege. It is the most important city in Lorraine, one of the provinces that were taken from France by Germany.

*Nancy*, noted for embroidery. The birthplace of Claude Lorraine. Who was Claude Lorraine?

*Coblentz*, at the confluence of the Moselle and Rhine, is a strongly fortified town protected by the fortress of *Ehrenbreitstein* (Broad stone of honor.)

*Bingen* is noted for picturesque old ruins, also for weird stories. Read the story of Bishop Hatto and his "Mouse tower on the Rhine."

*Mentz, Mainz or Mayence*, opposite the mouth of the Mayne River, is the birthplace of Gutenberg. Who was he?

*Frankfort*, the birthplace of Goethe, was for a long time the place where the German emperors were crowned. Charlemagne here led an army of *Franks* across a *ford* and thus gave it its name.

*Nuremberg* is noted for the manufacture of toys.

*Heidelberg*, on the Neckar, has one of the oldest and most famous universities in Europe. In the basement of an old castle on a high hill is a wine tun that holds 50,000 gallons. What is a tun? Compare the size of this tun with your schoolroom.

*Stuttgart*, near the Neckar, on the east slope of the Black Forest Mountains, is the capital of Wurtemberg.

*Strasburg*, a few miles west of the Rhine, the capital of Alsace-Lorraine, is noted for its fine cathedral with a tower 466 feet high. In it is perhaps the most wonderful clock in the world. "In the upper part of the clock are four old men who strike the quarter hours. Death comes out at each hour to strike, but Christ, with a spear in his hand, drives him back; but when the last quarter comes, Christ goes inside and Death comes out and strikes the hour with a bone in his hand, and then the chimes sound."

In 1870 the German army laid siege to Strasburg for seven weeks and captured it. Grave fears were entertained lest in the bombardment the cathedral should be destroyed; but it received no injury, although many other buildings were demolished.

*Basle* is the first Swiss city we reach in going up the Rhine. Being the nearest neutral city to the seat of war it was a great resort in 1870 for American and English tourists and war correspondents. Note the abrupt bend in the Rhine here. Above this point is the upper course, and from here down to Cologne is the middle course of the Rhine.

*Zurich*, on *Lake Zurich*, is one of the most important cities of Switzerland.

*Berne* on the *Aar* is the capital of Switzerland.

*Mt. St. Gothard* is an important culminating point from which flow four rivers in different directions. We shall reach it several times more by different routes in our journey around Europe.

*The Falls of Shafhausen* and *Lake Constance* afford beautiful scenery, as also does all the region of the Alps.

Note that the Rhine flows east and the Aar west from the same mountains, that they enclose a circular piece of land and then flow together.

#### GENERAL SUGGESTIONS.

Observe the distinction between the terminations *berg* and *burg* in German names. They differ both in meaning and pronunciation.

In English and American names *burg* or *burgh* is a contraction of *borough*, a village. But in German, *burg* means a castle or stronghold, and *berg* means a hill. Thus Heidelberg means huckleberry hill. We find the same root in iceberg. The syllable *bourg* is the same as *burg*, the *o* having been introduced by the French. Thus we have Cherbourg and, until recently, Strasbourg.

The Rhine is the natural, historic boundary between the French and German peoples, but at different places the actual, political boundary has been pushed over on the side of the weaker nation. At present the French have no possessions on the Rhine. The two little countries at the mouth and at the source of the Rhine form a striking contrast geographically, but historically there is much resemblance between them. What striking difference between them does the map show? If you have access to Motley's *Rise of the Dutch Republic*, read a few pages of the first chapter in connection with this lesson.

Since Germany slopes north, the conditions are favorable to uniformity of climate, for the effects of altitude and of latitude counteract each other.

There is no Swiss language. French, German and Italian are used by the people of those cantons that lie



nearest to France, Germany and Italy respectively. In the parliamentary assembly members use any one of the three languages; sometimes a member will begin a speech in French, end it in German, and be replied to in Italian; but the records are kept in French.

Emil Frey, who was President of Switzerland in 1896 was once a "hired man," working by the month for an Illinois farmer. He served in the Union army in our civil war.

## V.

### BELGIUM AND WESTERN FRANCE.

Can your pupils make from memory a good sketch of the Rhine basin, or of the Scandinavian Peninsula, or the Baltic Sea, or the western rivers of France, locating all the places thus far learned? Can they recite these places *in the order in which they would be reached in making a journey by water* around the coast and sailing up the rivers? Can they make such a journey in either direction? Can they state the leading facts about the cities, rivers, countries, climate and productions of the regions studied? CAN YOU? If not, the best thing to do is to "begin at the beginning," put aside all dawdling, half-hearted work and "get down to business." But if they (and you) can do what is noted above, then take courage and persevere. You have mastered nearly half the map work of Europe. Similar work on North America, with some very general work on the other grand divisions will give them an equipment in this branch that will be a life possession of much greater value than any series of stories however entertaining about peculiar people and their customs in out-of-the-way regions of the earth.

What kind of a text does the teacher who is prepared to teach geography need? First, and chiefly, it should have good, clear maps not overloaded with details. Second, the descriptive text should recognize the comparative importance of places and peoples, and should be brief and accurate. No expansion of interesting topics, or rhetorical word painting can be indulged in, or the book would swell to enormous proportions. It should furnish the *texts*—the discourses will be found in the library and the geographical readers, or will be supplied from the teacher's and pupils' general reading. Third, there should be some pictures of *characteristic* scenery in foreign lands, especially where it differs widely from the child's home surroundings.

*The Scheldt*, a sluggish, crooked river, drains the larger part of Belgium. Let the pupils decide from the

map whether this river is of more value for navigation or for water power.

*Antwerp*, the second city of Belgium, is the second city of continental Europe in maritime commerce, Hamburg being the first.

*Brussels*, the capital and largest city of Belgium, is about one-third as large as Chicago.\* It is noted for the manufacture of lace and carpets.

*Waterloo*, a famous battlefield (not a town) nine miles south of Brussels, is marked not by monuments but only by a large mound of earth. As this battle is the most famous of modern times it is well to learn a few facts about it. The date, June 18, 1815, the names of the generals, the Duke of Wellington and Napoleon Bonaparte, and the result, the defeat and capture of Napoleon and his banishment to St. Helena should be learned. Let the pupils find St. Helena. If the readers in use contain Byron's lines,

There was a sound of revelry by night,  
And Belgium's capital had gathered then  
Her beauty and her chivalry—

now would be a good time to read the selection.

*Ghent*, built on twenty-four islands, is connected with the North Sea by a ship canal. What treaty of peace was signed here?

Now sum up a few leading facts about *Belgium*. It is a small country, and is the most densely populated part of Europe. It has plenty of coal and iron, *hence* a manufacturing country. There is no Belgian language. The Flemish is used by a majority of the people, many

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\* The frequent reference to Chicago and Milwaukee in comparing the size of cities is explained by the fact that these lessons were originally written for teachers in the Northwest. Any cities of like size can easily be substituted by teachers in other sections of the country, as units of comparison.

use the French, and others the German. Government records are kept in French.

*Strait of Dover.* How wide is it? Does the map suggest why it is rough and turbulent? Engineers estimate that it would be practicable to build a tunnel under the strait connecting England and France. About a quarter of a million travelers cross from Dover to Calais each year.

*English Channel.* Observe its direction and shape. The French coast of the channel affords no good natural harbors; the English many.

*Havre*, at the mouth of the Seine, is the great Atlantic seaport of France. It is to France what Hamburg is to Germany.

*Rouen*, the birthplace of LaSalle, is a city famous in history and has great cotton factories. Joan of Arc was burned here. Why? By whom? Who was she?

*Paris*, the second city of the world and one of the most beautiful, the capital of France, owes its beauty to Napoleon III, under whose reign it was practically rebuilt on the modern plan. Spend a lesson or two on Paris, encouraging the pupils to read from reference books and gather the most important facts.

*Versailles*, a suburb of Paris of about 50,000 inhabitants, is noted for the fine palace built by Louis the XIV, which cost so much that he destroyed the accounts.

*Cherbourg* has an artificial harbor, protected by the greatest breakwater in the world. It was here that the Alabama and the Kearsarge met in 1864. Review the history of these vessels. Why did they fight



as soon as they met? Who was captain Semmes? What and where is Roncador reef?

*Channel Islands.* Observe that the names of these islands are the names of different breeds of cattle. They are famous for dairy farming and fisheries. The islands belong to England, but the inhabitants speak French.

*Brest*, the finest natural harbor on the coast of France, is connected by ocean cable direct with Duxbury, Massachusetts.

*Bay of Biscay.* Navigation is difficult on this bay on account of storms and circular currents. The Spanish coast of the bay is high and rocky, the French low and sandy. Does the map indicate this?

*Loire River* is navigable farther than any other river of France. In its lower course it is protected by dikes 20 feet high.

*Nantes* and *Tours* are important business cities.

*Orleans*, at the big northern bend of the Loire, is of great importance historically. Who was the "Maid of Orleans"?

*St. Etienne* in the upper valley of the Loire, is one of the greatest coal fields in France. It is sometimes called "the Pittsburg of France" from the smoky atmosphere that prevails on account of the factories using soft coal. Cutlery and fire-arms are made there.

*The Gironde* is the wide mouth or estuary into which the *Dordogne* and *Garonne* flow.

A curious fact about the *Garonne* is that it rises on the southern slope of the Pyrenees, and, flowing for a short distance on the Spanish side, turns and flows by a subterranean channel through the mountain, coming out on the French side.

*Bordeaux* exports much wine; it is a very old city.



*Toulouse*, a manufacturing city on the upper Garonne, is connected with the Mediterranean by the

*Languedoc Canal* which is soon to be enlarged to a ship canal.

Note that France, like Germany, has her coast on two seas, and that a ship canal connecting them would be of great use in time of war.

*The Landes*, a low, level coast region in southwestern France, is useful chiefly for grazing. The people there are great stilt walkers, sometimes using stilts fifteen feet high.

*Bayonne* is the last town of southern France. In early times a regiment of soldiers raised here used sharp pointed sticks in the ends of their guns for spears; this gave rise to the weapon and the word bayonet.

*Pyrenees Mountains* on the boundary between France and Spain, are due east of Milwaukee.

Whenever convenient make the lesson end with a natural unit of work, and select such units as review topics. The most important natural units thus far are: (1.) The west slope of Scandinavia. (2.) The Scandinavian Peninsula. (3.) The Baltic Basin. (4.) The Elbe Basin. (5.) The Rhine Basin. (6.) The West Slope of France.

## VI.

### THE SPANISH PENINSULA.

Have the map thoroughly learned as fully as it appears in this sketch, so that the pupils can name all the places. The map work is not well done until the class can make a map from memory as full as this sketch. While this drill is going on, the map itself is the thing of most importance. Make it the prime object of thought. Never mind the "conception of the realities of which the dead map forms are only symbols." The business in hand now has to do with dots and lines, eye training, manual skill, the study of form, the noting of directions and relative distances, and the memorizing of names—mere names, empty names. But after the few days of drill necessary for this, the breath of life will be put into the dead forms. This drill need not be drudgery; most pupils can be led to enjoy it. But if it should prove to be drudgery, then so be it; there is no royal road.



- |  |   |
|--|---|
| 1. Bayonne.                                | 16. Granada.  |
| 2. Cantabrian Mountains.                   | 17. Sierra Nevada Mountains.                            |
| 3. Cape Finisterre.                        | 18. Cadiz.  |
| 4. Oporto.                                 | 19. Gibraltar: Cape, Rock,<br>Strait, Fort.             |
| 5. Douro River.                            | 20. Mediterranean Sea.                                  |
| 6. Valladolid.                             | 21. Malaga.   |
| 7. Lisbon.                                 | 22. Balearic Islands. (Pronounce<br>in four syllables.) |
| 8. Tagus River.                            | 23. Valencia.   |
| 9. Madrid.                                 | 24. Ebro River.   |
| 10. Cape St. Vincent.                      | 25. Barcelona.  |
| 11. Gaudiana River.                        | 26. Pyrenees Mountains.                                 |
| 12. Palos.                                 | 27. Gulf of the Lion.                                   |
| 13. Guadalquivir River.                    | 28. Languedoc Canal.                                    |
| 14. Seville.                               | 29. Mouth of the Rhone.                                 |
| 15. Genil River. (Pronounce<br>Hay-neel'.) |   |

*The Cantabrian Mountains* are a continuation of the Pyrenees, but not so high.

*Finisterre*, (*Finis*, end; *terre*, land). Compare the derivation of Mediterranean, Tierra del Fuego, territory, inter, subterranean, terrestrial, etc. This cape is due east of Milwaukee and of Portsmouth, N. H.

*Oporto*, like Bordeaux, exports much wine and gives the name to port wine.

*Valladolid*, the old capital of Spain, is the place where Columbus died.

*Lisbon*, the capital of Portugal, has one of the finest harbors in the world. In 1755 the city was ruined by an earthquake which killed 40,000 people in ten minutes.

*The Tagus* is the largest river of this peninsula, but is navigable only as far as the Spanish boundary.

*Madrid* is half as large as Chicago. Among all the capitals of Europe it is probably the least attractive.

Hold the map at a little distance and you will see in the west coast the profile of a thin-faced, sharp-nosed old man. Cape Finisterre is the front of his cap or forehead; Oporto, his eye; at Lisbon are the small sharp nose and mustache; Cape St. Vincent is the chin; the throat and neck slope back to Gibraltar.

*Palos* is associated with Columbus and the discovery of America.

*Seville* is famous for fine buildings and for bull fights. The great bull ring is arranged to seat 18,000 spectators.

*Cadiz* is one of the oldest cities in the world, having been founded about 3,000 years ago.

*Gibraltar* is one of the strongest forts in the world and is owned by England. But it no longer commands the entrance to the Mediterranean, for modern steam vessels can enter against the strong current which is



near the African shore and can thus keep out of the range of cannon.

*Malaga* is also a very old city, and is noted for its wonderfully uniform, dry and clear weather. Malaga grapes and raisins are shipped from here. Green grapes are packed in chipped or coarsely pulverized cork, and shipped across the ocean in barrels or casks. What is cork, and how is it obtained? Let the pupils try to imagine all the bottle corks, fish net floats, life preservers, cork soles of shoes, etc., in one large city—in the whole United States—in all the world; then remember that almost the entire supply of cork for the whole world comes from this peninsula. The acorn of the cork oak is a sweet, edible nut resembling the chestnut in taste.

*Balearic* is from a Greek word meaning to throw. The ancient inhabitants of these islands were famous for their skill with the sling.

*Valencia* is a fine city built in a big orchard; its waterworks were constructed eight hundred years ago by the Moors.

*The Ebro* is the only large river of Spain which flows eastward. It is of but little use for navigation.

Call attention to the highest object the pupils have seen—say a church spire 200 feet high. Let them imagine eight such spires one on top of another. Now suppose a wall 1,700 feet high were built all around the shore of this peninsula and the whole of Spain and Portugal were leveled off as smooth as a flower bed; it would just about fill the space within the wall level to the top. If France were leveled off in the same way, and one were to walk from Spain to France he would have



to step down a distance of over a thousand feet, for France averages only about 600 feet above sea level.

Note the peculiar arrangement of mountains in parallel ranges running east and west with narrow valleys between. Consult the text-book for climate and productions, and note that the climate is considerably affected by the Sahara desert on the south.

## VII.

### EASTERN FRANCE AND ITALY.

The French propose to change the Languedoc Canal into a ship canal large enough for the largest ocean steamers. When this is done, how will it affect Gibraltar? Of what advantage to commerce? Of what advantage to France in case of war?

The *Durance* rises near *Mont Cenis*, not far from which is a famous railroad tunnel over seven miles long.

The *Iser* rises near the highest mountain in Europe, which is *Mont Blanc*, 15,732 feet high.

*Lyons*, the second city of France, is about one-third as large as Chicago. It is the center of the silk industry, over one hundred thousand looms are employed here in weaving silk.

Read in your cyclopedia about silk and silkworms. The story of the two monks who secretly brought silkworms from China to Europe hidden in a hollow cane will interest the pupils. In this country, Patterson, N. J., is the center of the silk industry.

The *Saone* and *Rhone* join in such a way as to raise the question which is the main stream and which the branch. Show that size and length of river, and size of basin, not direction, determine the question.

*Geneva* is famous as a literary center; watches and jewelry are made here in great quantities. Let the

class associate Geneva with Cherbourg in United States History: Alabama—Kearsarge—Cherbourg—Arbitration—Award.



Point out the resemblance of Italy to a boot, a long military boot with a high heel and small toe; the foot seems drawn back to kick the football, Sicily; notice the spur above the heel.

*Lake Geneva* is clear, deep, and beautiful. Its surface rises and falls near Geneva from three to five feet in a few hours; this is supposed to be due to varying

air pressure. "The Rhone enters the lake at the upper end, turbid and yellow, and leaves it at the city of Geneva clear as glass and of a deep blue tint. From the lake Mont Blanc is visible, and although 60 miles distant is often reflected in its waters." Read Byron's *Prisoner of Chillon*.

Teach the map of eastern France and of Italy so that pupils can indicate in sketches the following:

- |                         |  |
|-------------------------|--|
| 1. Rhone River.         | 24. Tiber River.   |
| 2. Durance River.       | 25. Rome.  |
| 3. Mont Cenis.          | 26. Naples.  |
| 4. Isere River.         | 27. Mt. Vesuvius.  |
| 5. Mont Blanc.          | 28. The buried cities: <i>Herculaneum</i> , <i>Pompeii</i> . |
| 6. Lyons.               | 29. Lipari Islands.  |
| 7. Saone River.         | 30. Stromboli.   |
| 8. Geneva.              | 31. Sicily.  |
| 9. Lake Geneva.         | 32. Palermo.   |
| 10. Mt. St. Gothard.    | 33. Malta.   |
| 11. Marseilles.         | 34. Syracuse.  |
| 12. Toulon.             | 35. Mt. Etna.  |
| 13. Nice.               | 36. Strait of Messina.                                       |
| 14. Gulf of Genoa.      | 37. Scylla and Charybdis.                                    |
| 15. Genoa.              | 38. Gulf of Taranto.   |
| 16. Arno River.         | 39. Strait of Otranto.                                       |
| 17. Pisa.               | 40. Adriatic Sea.  |
| 18. Florence.           | 41. Po River.  |
| 19. Apennine Mountains. | 42. Milan.   |
| 20. Leghorn.            | 43. Turin.   |
| 21. Island of Elba.     | 44. Venice.  |
| 22. Island of Corsica.  | 45. Trieste.   |
| 23. Island of Sardinia. |  |

The *Rhone* rises near St. Gothard; not far from this mountain is a railroad tunnel nine miles long.

The Hoosac tunnel in Massachusetts is five miles long. The longest tunnel in the world is almost completed through the Andes Mountains between Argentina and Chili. It will be over 12 miles long.

The upper Rhone is noted for the very great number of glaciers which its valley contains, the most famous of which is the *Mer de Glace* near Mont Blanc. What is a glacier? So many tourists are among the

Alps every summer that these mountains are called the playground of Europe.

*Marseilles*, the third city of France, is an important commercial center; its trade has grown rapidly since the opening of the Suez canal. Do you see why?

*Toulon* and *Nice* are important French cities; the latter is a winter resort for invalids, and is the birthplace of Garibaldi.

*Genoa*, the birthplace of Columbus, is built on hillsides sloping up from a circular harbor in the form of an amphitheater.

The *Arno* rises in the *Apennines*, the backbone of the Italian peninsula.

*Pisa* is noted for the famous leaning tower. If the text-book does not give a picture of it, have the pupils look at the picture in the cyclopedia.

*Florence* is briefly described in Longfellow's "Falcon of Sir Federigo."

*Leghorn* is a large city which takes its name from a kind of wheat with a peculiarly small and tough straw from which leghorn hats are made.

*Elba* is the island to which Napoleon Bonaparte was banished in 1814.

*Corsica*, a large island belonging to France, is the birthplace of Napoleon Bonaparte.

*Sardinia* is noted for the production of wheat, minerals and sardines. Five-sixths of the people cannot read or write.

*Rome* on the *Tiber*, a city of 400,000 population, formerly had 2,000,000 inhabitants. It is surrounded by a desolate, uninhabited region, mostly marshland,



wholly unfit for cultivation; the city has no manufactures and little commerce. As a modern city it could not exist except for the fact that it is the capital, and the home of the Pope, and that many tourists spend money there. But it is famous historically, and its ruins are among the most interesting in Europe.

*Naples*, the metropolis of Italy, has great commercial interests, and is a busy, modern city. Its attractiveness and delightful climate gave rise to the saying "See Naples and die," as if there were nothing more worth living for after seeing so fine a city. Its streets are paved with lava from

*Vesuvius* is the most noted volcano in the world; it now has two distinct peaks, but in former times it had but one. It is 4000 feet high and 30 miles around the base. The crater is nearly half a mile across. "A rope railroad carries visitors to within a short distance of the crater. Half way up the volcano, an observatory has been built to study the eruptions and watch for indications of an approaching earthquake. The region around Vesuvius has been densely populated for twenty centuries in spite of its many eruptions. The great eruption of August 24, A. D. 79, which destroyed Herculaneum and Pompeii is the first one of importance. It was not lava, but showers of ashes condensed into mud by the rain produced by the steam of the volcano that seems to have overwhelmed these cities. In an eruption in 472 the ashes were carried to Constantinople, and in 1066 the lava flow reached the sea. The next great eruption was in 1631 when 18,000 lives were lost. The

eruptions have increased in frequency, and the volcano is never entirely quiet."

The buried cities *Herculaneum* and *Pompeii* will furnish material for an interesting lesson. The teacher should spend some time reading about these wonderful ruins.

*Lipari Islands* are a group of volcanic islands; *Stromboli*, the largest volcano among them, is almost always in an active state of eruption.

*Sicily* is the largest and most fertile island in the Mediterranean, and produces great quantities of fruit, wheat and sardines.

The *Strait of Messina* has dangerous rapids and rocks on either side, but the navigation is safe in the middle. The ancients imagined that two monsters called Scylla and Charybdis were on the sides of this strait; hence arose the saying "To avoid Scylla and go to wreck on Charybdis," meaning to avoid one extreme and go to the other.

*Etna* is another great volcano. In Roman mythology a race of giants was said to have lived in Sicily; they became too strong, and Jupiter undertook to kill them off. This he did by hurling thunderbolts at them; but the biggest one, Enceladus by name, he could not kill, but wounded him and piled upon him rocks and earth in a great mound (*Etna*). Enceladus they say is still alive and sometimes groans, and in trying to arise causes earthquakes.

Read to the class Longfellow's little poem Enceladus. The people of Sicily are devout and superstitious, and three-fourths of them cannot read.

*The Po* is the largest river of Italy, and drains an area half as large as Illinois. In its eastern half it runs very slowly through a level, fertile plain. Its delta is

forming perhaps more rapidly than that of any other river in the world. Ravenna, once a seaport, is now four miles inland. The Po basin was once an arm of the Adriatic, and a slight subsidence would again cause it to be submerged.

*Milan* is about as large as Minneapolis; it has a famous cathedral, on the outside of which are 6,000 statues in niches.

*Turin* is another fine city on the Po. It was for some time the capital of Italy.

*Venice* is as large as Chicago. It has no street cars and uses no horses. Why? What are gondolas? It is built on more than 100 islands.

*Trieste* is the only Austrian seaport. It is an important commercial city.

## VIII.

### TURKEY AND GREECE.

While working on the map the thing to do is to master the map forms. The supposed danger that the pupils will thus come to regard the map as an end in itself and not as a symbol is a harmless bugbear that does not disturb any sensible teacher. Intelligent people in thinking of places they have not seen, call to mind first the map form. This arbitrary map form they are able at will to translate into a notion more or less closely resembling the reality according to the amount of information possessed about the place and the degree of skill acquired in forming mental pictures from descriptions. But for many purposes this translation is not necessary. To illustrate: When one is thinking of a proposed journey by rail, say from St. Paul to Cleveland, he may call to mind a black line running diagonally across the page to a round or square dot (Chicago) beside an oval, shaded portion of the page (Lake Michigan) thence with a curve around the lower end of the oval and away toward the right to another dot beside a shaded portion shaped somewhat like a whale (Lake Erie). Now since *distance* and *direction* are all he cares to consider at present, Chicago may very properly remain in his mind a mere dot on a page, and it is by no means necessary that he should think of real water or real ice in Lake Erie.

But as the pupil recites he should have the map in mind, and see in imagination the places as they stand related to one another in space. Unless the teacher is careful to show the class how to prepare the lesson, pupils who have a retentive verbal memory will memorize the lists, and while reciting will think only of the words as they appear in the list.

Learn the following places and make a sketch map showing their location:

- |                            |                             |
|----------------------------|-----------------------------|
| 1. Montenegro.             | 16. Pruth River.            |
| 2. Ionian Islands.         | 17. Galatz.                 |
| 3. Gulf of Corinth.        | 18. Bucharest.              |
| 4. Morea.                  | 22. Belgrade.               |
| 5. Cape Matapan.           | 23. Save River.             |
| 6. Crete.                  | 24. Theiss River.           |
| 7. The Archipelago.        | 25. Drave River.            |
| 8. Athens.                 | 26. Lake Balaton.           |
| 9. Salonica.               | 27. Buda-Pesth.             |
| 10. Strait of Dardanelles. | 28. Vienna.                 |
| 11. Sea of Marmora.        | 29. Isar River.             |
| 12. Bosphorus.             | 30. Munich.                 |
| 13. Constantinople.        | 31. Ludwig's Canal.         |
| 14. Black Sea.             | 32. Black Forest Mountains. |
| 15. Danube River.          |                             |

*Montenegro* is a small principality on the east shore of the Adriatic. The people are brave, hardy mountaineers, whose chief business for many years has been to fight the Turks.

*Ionian Islands*, a group of islands belonging to Greece.

*The Gulf of Corinth* separates the peninsula of Morea (Peloponesus) from the mainland of Greece. Note that the Morea is shaped like a clumsy hand with fingers spread pointing south; the southern point is

*Cape Matapan*, to the southeast of which is

*Crete (Candia)* the most southern part of Europe. In one respect Crete is like Ireland; there are no snakes there. Crete is almost independent, but is nominally owned by Turkey. "All Cretans are liars," was a common saying in olden times.





*Athens*, the capital of Greece, is one of the most famous of ancient cities. It now has about 100,000 inhabitants. A high, rocky hill in the middle of the city is called the Acropolis; it is about 500 feet high, and on its summit are the remains of famous temples.

*The Archipelago* or *Aegean Sea* is a beautiful, cheerful region. Note the great number of small islands, some of which are very beautiful.

*Salonica* is a city of 120,000 people, half of whom

are Spanish Jews. It is the second most important city of Turkey. This was the Thessalonica of the early Christians, and its people were called Thessalonians.

*Strait of Dardanelles* or *The Hellespont* is one to four miles wide. Near Abydos, a little, ancient city, Xerxes crossed into Europe with an army of over a million men. About the same place Alexander afterward crossed with his army to invade Asia. By an agreement among the great nations of Europe no war vessel is allowed to pass through this strait without the express permission of Turkey. A strong current runs through the strait from

*The Sea of Marmora* which is noted for the marble quarries on one of its islands.

*Constantinople*, or *Stamboul*, formerly called Byzantium, on the Bosphorus, is the capital of Turkey. An arm of the Bosphorus called the Golden Horn forms the harbor. There are twenty miles of fortifications along the Bosphorus, and the Dardanelles is also strongly guarded by many forts on both sides.

*The Black Sea* is so called because to early navigators it was a gloomy, dismal sea in comparison with the beautiful, cheerful Aegean. This is due in part to the entire absence of islands and in part to the fogs which at some seasons prevail, caused by the thawing of the snow on the great Russian plains to the north.

The delta of the *Danube* is about as large as the state of Rhode Island; it is a swampy wilderness in which sea birds, wolves and buffalos abound. The Danube is the second largest river in Europe, about three times as large as the Rhine; it carries as much water as

all the rivers of France, and the yearly deposit of mud, sand and gravel at its mouth aggregates a volume of ten square miles nine feet deep. Consequently the delta is growing.

The *Pruth* is the boundary between Russia and Roumania.

*Galatz*, being the city nearest the mouth of the Danube, is of considerable importance commercially.

*Bucharest*, a city about as large as Milwaukee, has the reputation of being the wickedest city in Europe; it has many gambling houses and is said to possess "all the vices and few of the refinements of Paris." It is on a little branch of the Danube called the Dambovitza.

*The Iron Gate* is a water gap in which the river is very rapid and full of jagged rocks. It is on the eastern slope of that part of the Carpathian Mountains called the Transylvanian Alps. The rushing torrent boiling and seething among the rocks makes a dangerous and practically impassable series of rapids, thus cutting the Danube into two parts so far as commerce is concerned. But a canal has recently been built to overcome this obstruction.

Note that the Carpathian Mountains, the Transylvanian Alps and the Balkan Mountains form a big inverted letter S which is cut by the river at Iron Gate. In ages past, before the river had worn its channel down to its present level in this gap, the region above Iron Gate was a great lake. This old lake bottom is now a fertile, even, and in some places low and somewhat marshy region, valuable for agriculture and grazing.

*The Theiss* River runs parallel with the Danube for

many miles. Its tributaries are on the east side. Why?

*Lake Balaton* may be considered a remnant of the great inland sea which formerly reached to the mountains. In this vicinity are some extensive goose pastures.

*Buda-Pesth*, the chief city and capital of Hungary, is noted for having the highest death rate of all the cities of Europe. Some famous bridges span the river here.

Note the square bend in the river above *Buda-Pesth*.

*Vienna* is about as large as Chicago. It is a fine city, the capital of Austria-Hungary. It has the largest park in Europe, and is the seat of a great university. Most of its commerce is carried on by way of Trieste by railway. Why?

*Munich*, the capital of Bavaria, is one of the most beautiful cities of Germany; it is famous for its art museums, the manufacture of telescopes and mathematical instruments, and its university.

*Ludwig's Canal* joins the Danube with the Rhine.

The source of the Danube is in the Black Forest mountains, not far from Basle.

The people of Austria-Hungary are heterogeneous in their language and manner of life; in Austria they are German in speech and origin; in the northern part the Bohemians prevail, in the northeastern, the Poles; the Hungarians are a separate people in many respects, although under the same emperor with the Austrians. About a third of the people of Hungary are Mongolians called Magyars. They are an aristocratic class, and own the land.



## IX.

## SOUTHERN RUSSIA AND THE CASPIAN BASIN.



- |                                  |                            |
|----------------------------------|----------------------------|
| 1. Black Sea.                    | 12. Mount Elburz.          |
| 2. Odessa.                       | 13. Derbend.               |
| 3. Dnieper River.                | 14. Caspian Sea.           |
| 4. Crimea.                       | 15. Volga River and Delta. |
| 5. Sevastopol.                   | 16. Astrakhan.             |
| 6. Balaklava.                    | 17. Nijni Novgorod.        |
| 7. Strait of Kertch or Yenikale. | 18. Oka River.             |
| 8. Sea of Azov.                  | 19. Moscow.                |
| 9. Don River.                    | 20. Valdai Hills.          |
| 10. Manitch River.               | 21. Ural River.            |
| 11. Caucasus Mountains.          | 22. Ural Mountains.        |

*Odessa* is the central shipping point for wheat and

other grains raised in southern Russia. It is a modern city and has had a rapid growth; many of the poor in Odessa live in caves or galleries hollowed out of the soft rock on which the city is built. It gets its water supply from the Dnieper river 27 miles distant. Odessa is noted for its great grain trade, for its persecution of the Jews, and as the home of the cholera.

In 1887 the population of Odessa was over a quarter of a million, but since that date 70,000 Jews have been driven out.

*The Crimean* peninsula was the seat of the war waged in 1854 by England, France, Turkey and Sardinia against Russia.

*Sevastopol* (pronounce Sev-as-to'-pol) was besieged for nearly a year. Its strong forts were captured and blown up, but have since been re-built. Read the account of

*Balaklava* in the cyclopedia, then read Tennyson's Charge of the Light Brigade.

*The Black Sea* is shaped like a baby's shoe with the toe pointing eastward. The Sea of Azov and the Don River are the latchet or string.

*The Manitch River* is a chain of lakes for the greater part of its course. It rises very near the shore of the Caspian Sea.

*The Caucasus Mountains* are the boundary between Europe and Asia; Mt. Elburz is the highest peak; it is 18,000 feet high.

We cannot continue our journey around Europe by water, but by making a short portage from the source of the Manitch we may launch our boat in

## THE CASPIAN SEA.

This sea once had a much higher level (over 200 feet higher) than it now has. This is plainly shown by the markings of the old shore line on the surrounding rocks. But it is also true that recently (within the historic period) it had a much lower level than it now has. This is shown by the fact that at Derbend on the shore of the Caspian, a city founded by Alexander the Great, masonry is found fifty feet below the present level. What caused these changes?

When the water stood at the higher level it was an arm of the ocean extending from the Arctic regions over the basin of the Aral and including the Black Sea and a great part of the low land of southern Russia. The breaking down of the barrier then existing where the Strait of Bosphorus now is together with volcanic upheavals probably cut it off, leaving it as now a great interior basin with no outlet to the ocean, and having a surface 50 or 60 feet lower than now.

But what causes afterward raised the level? Examine the map and notice the direction of the upper courses of the Don River and the Volga River. They seem to be about to flow together, running in converging valleys like two confluent branches. But after approaching near to each other, they suddenly diverge. Ancient geographers state that formerly the Volga emptied into the Sea of Azov through the channel which is now the lower course of the Don. In this way it had an outlet to the ocean even as late as the fifth century of the Christian era, when its course changed to where it now is. Thus the great floods of water carried by the largest

river of Europe were turned into the Caspian, greatly enlarging its depth and area. But its surface is still lower than that of the Black Sea (the ocean level) by about 80 feet. Why does it not fill up any higher?

The Caspian has no tides. It is about twice as large as the combined area of the Great Lakes of North America, is deep (3,000 feet) in the southern part and shallow (not more than 50 feet deep) in the northern part. The northern part freezes in winter, but the southern part is always open. Some of the schoolbooks say the water of the Caspian is very salty, but the fact is it is much less salty than that of the ocean or of the Black Sea. There are some parts of it where the water is so fresh that it may be used for drinking. On the other hand there are many of the shallow gulfs and bays along its eastern shore so formed as to be catch basins or evaporating pans in which the water is so salt as almost totally to exterminate animal life.

The region of the Caspian Sea is the second largest oil field in the world. Petroleum wells are found at both ends of the Caucasus Mountains.

After studying the Caspian, let the pupils answer questions like the following:

In what respect is the region southwest of the Caspian like Western Pennsylvania?

If a large canal were cut from the Black Sea to the Caspian, which sea would become larger in consequence?

Why is the Caspian of so little importance historically? Account for the absence of great cities on its shores. In this respect how does it compare with the Baltic Sea and the North Sea?

May it be possible that the Caspian has an underground outlet to the ocean?

*Astrakhan*, on an island in the Volga, is the principal



city of the Caspian region and is the only port of importance on the sea.

*Nijni Novgorod* at the confluence of the Oka and the Volga is famous for its great fairs held every year which attract many thousands of people from Europe and Asia.

*Moscow*, the old capital, is sometimes called "Holy Moscow" because of the ancient churches and alleged relics of saints that are there. Russia is a Christian country, though neither Roman Catholic nor Protestant. The Czar is the head of the Eastern or Greek branch of the Christian church. The Russians observe the old calendar, which makes the first day of their months correspond to the 13th day of ours.

#### X.

#### CENTRAL AND NORTHERN RUSSIA.

From Moscow to St. Petersburg, a distance of about 400 miles, is a remarkable railroad, the straightest line of the same length in the world. It runs through the Valdai Hills.

The towns along this road are sometimes several miles from the station. This road is a monument of the arbitrary rule of the Czar. When Nicholas directed a preliminary survey before building the road, the engineers showed him the proposed route so marked out as to run through cities near the line when practicable. He had a suspicion that the engineers and the Minister of Ways and Roads had been bought up by the towns, and were recommending a crooked line because of personal considerations. He called for a ruler, and laying it on the map, drew a straight line from St. Petersburg to Moscow, saying, "Build the road on that line." When

they tried to remonstrate, he simply said, "You will build me the road so." The road is not quite so straight as the story would indicate, but a railroad map will show that it varies but little from a bee-line.

Numerous canals join the head waters of the Volga with the Baltic Sea. Canals and railroads in Russia are built with a view to military as well as commercial interests. Why is this or that road here or there is not always answered by a study of the commercial needs, but possible military convenience enters also into the question and its answer.

We may divide Russia into four strips or zones. Run a line from east to west through the middle, and in like manner divide each half by parallel lines. The southern of the four strips is the region of the steppes or treeless plains; they are similar to our prairies and are fruitful, especially in the western part, but in the eastern part are dry and barren. Next north of the steppes is the hardwood timber belt, a large part of which has been cleared and is cultivated in farms. Then comes the great evergreen forest region. This supplies great quantities of lumber. The northern belt is the tundras or cold, barren plains. These also are for the most part bare of trees but are covered with moss and lichens and are mostly uninhabitable.

Why are there no cities on the northern shore of Russia?

Besides the Volga, another great river, the Ural, flows into the Caspian. In the southern part of the Ural Mountains is a region famous for the production of gold. Up to the time of the discovery of gold in Cal-

ifornia and Australia it was the most famous gold field in the world.

Nearly all mountain chains extend in the direction of one or the other line in the letter X, but the Ural chain is an exception; it extends nearly north and south.

An overland journey northward in Russia near the Ural Mountains to the Arctic Ocean would be a difficult one to make and would bring us to a desolate coast near the islands of Nova Zembla on which nobody lives. Sailing westward from here we would come to the mouth of the Petchora River, a large stream, but of no use for commerce. Why?

*The White Sea* is a great arm of the Arctic Ocean which was formerly connected with the Baltic through lakes Onega and Ladoga and the Gulf of Finland. On this sea is

*Archangel*, a city so far north that the shortest day is only about three hours in length. Note that even St. Petersburg is farther north than Sitka, Alaska. Sitka was formerly called New Archangel. Archangel is said to be the only city in the world where the reindeer is commonly used.

To the southwest of the White Sea is Finland, a land of many lakes, large forests and few cities. It is larger than Illinois and Wisconsin combined, but has less than half as many inhabitants.

Between the White Sea and North Cape is Lapland which is merely a name applied to those parts of Finland, Russia and Norway in which the Lapps live. The Lapps are the smallest and dirtiest race of Europe. The adults are only four to five feet high. They are in large

part descended from criminals transported from Denmark three centuries ago. Without the reindeer most of Lapland would be uninhabitable; it furnishes food, clothing and means of transportation.

Arriving again at North Cape, Hammerfest, Loffoden Islands, Maelstrom, Trondhjem, etc., (see page 7) we will sail westward and come to

*The Shetland Islands*, belonging to Great Britain. There are one hundred of them, but only about a fourth of them are inhabited. The little, shaggy Shetland ponies are native there. Further south are

*The Orkney Islands*, about the same in number, and about a fourth of these also are inhabited. The population is a mixture of Scotch and Scandinavians. These islands belonged to Denmark until the time of James III of Scotland who married Margaret of Denmark. The King of Denmark promised to settle a certain stipulated sum as a dowry on Margaret, and put up these islands as a sort of collateral security for the payment of the sum, entering into a treaty that virtually amounted to a mortgage on this property. Failing to pay the cash he gave up the islands to England in 1468.

We now come to the part of Europe which is to us by far the most important—the British Isles.

Lead the pupils to see some reasons why these islands are to us the most important part of Europe. Let them note what a large part of the world the English speaking people occupy; also that these islands are in the center of the land hemisphere.

## XI.

### GREAT BRITAIN AND IRELAND.

Notice that in the British Islands, capes are commonly called heads; and in Scotland bays are called firths. What name is given to bays in Norway?



Teach the pupils to use these terms with proper discrimination: England, Great Britain, British Islands, the Kingdom of Great Britain and Ireland, the British Empire.

Scotland was originally almost cut in two by a chain of lakes extending from Moray Firth to the Firth of Clyde. This partial water-way has been completed by cutting the Caledonian Canal.

*Inverness* is a large city in the Highlands and near it is the famous battlefield of Culloden.

*The Grampian Hills* are the boundary between "The Highlands" and "The Lowlands."

*Aberdeen*, means "at the mouth of the Dee." It is the chief city of northern Scotland.

*Dundee* is famous for its fine confectionery and coarse linen fabrics. A railroad bridge two miles long spans the Tay here.

*Edinburgh* (Edwin's castle or fortress) is about as large as Milwaukee. It is famous for the production of beer, and is one of the most beautiful cities of Europe. It has one of the great universities of the world, and is a center of scientific and literary activity.

*The Cheviot Hills* and the *Tweed River* form part of the boundary between England and Scotland. In this region and along the Tweed were fought the border wars that are commemorated by Walter Scott.

*Newcastle* is the center of the great coal region of England. What is meant by the old English saying "carrying coals to Newcastle"?

*The Humber*, a broad, short river or estuary, receives several tributaries coming from different direc-

tions like radii. On these rivers are the great commercial city of *Hull* and the manufacturing cities of *York*,



*Leeds and Sheffield.* Near the source of one of these

rivers, the *Trent*, is *Birmingham*, noted for steel pens and firearms. 20,000,000 steel pens per week are made here. What continental cities are noted for firearms?

- |                      |                           |
|----------------------|---------------------------|
| 1. Duncansby Head.   | 37. Plymouth.             |
| 2. Moray Firth.      | 38. Land's End.           |
| 3. Inverness.        | 39. Scilly Islands.       |
| 4. Caledonian Canal. | 40. Bristol Channel.      |
| 5. Aberdeen.         | 41. Lower Avon River.     |
| 6. Grampion Hills.   | 42. Bristol.              |
| 7. Dundee.           | 43. Severn River.         |
| 8. Firth of Forth.   | 44. Upper Avon River.     |
| 9. Edinburgh.        | 45. Stratford.            |
| 10. Tweed River.     | 46. Swansea.              |
| 11. Cheviot Hills.   | 47. St. George's Channel. |
| 12. Tyne River.      | 48. Irish Sea.            |
| 13. Newcastle.       | 49. Liverpool.            |
| 14. Humber River.    | 50. Manchester.           |
| 15. Hull.            | 51. Isle of Man.          |
| 16. York.            | 52. Solway Firth.         |
| 17. Leeds.           | 53. North Channel.        |
| 18. Sheffield.       | 54. Firth of Clyde.       |
| 19. Birmingham.      | 55. Glasgow.              |
| 20. The Wash.        | 56. Ben Nevis.            |
| 21. Great Ouse.      | 57. Caledonian Canal.     |
| 22. Cam River.       | 58. The Hebrides.         |
| 23. Cambridge.       | 59. Cape Wrath.           |
| 24. Thames River.    | 60. Malin Head.           |
| 25. Greenwich.       | 61. Londonderry.          |
| 26. London.          | 62. Giant's Causeway.     |
| 27. Windsor.         | 63. Belfast.              |
| 28. Oxford.          | 64. Dublin.               |
| 29. Strait of Dover. | 65. Queenstown.           |
| 30. Dover.           | 66. Cork.                 |
| 31. English Channel. | 67. Cape Clear.           |
| 32. Isle of Wight.   | 68. Valentia Island.      |
| 33. Portsmouth.      | 69. Lakes of Killarney.   |
| 34. Avon River.      | 70. Shannon River.        |
| 35. Salisbury Plain. | 71. Galway Bay.           |
| 36. Stonehenge.      | 72. Donegal Bay.          |

*Cambridge* is the seat of one of the most famous universities. Note the probable origin of the name. It is on the *Cam* river.

*The Thames* is one of the most important rivers in

the world. Compare it in size with the Amazon. The population of its basin is fifteen times as great as that of the Amazon. Think of the different ways in which rivers are useful—as water-ways, for power, for irrigation, etc. A river's importance does not depend on its size. The Detroit and the Thames are probably the most valuable rivers in the world, the great Colorado, one of the least valuable.

*Greenwich* is the seat of the Royal Observatory, the place from which most civilized nations take the standard of time and of determining position.

*London* has a population about equal to all New England.

*Windsor* is the residence of the Queen. In 1215 King John was forced to sign the Magna Charta at Runnymede, near Windsor.

*Oxford* is noted for its great university.

*The Isle of Wight* was the home of Tennyson.

*Portsmouth* is the strongest fortified port of Great Britain.

*Stonehenge*, on *Salisbury Plain*, is a famous group of Druidical ruins. Look at the word in the cyclopedia and in the dictionary.

*Bristol Channel* has very high tides.

*The Severn* is the largest river of England.

*Bristol* is an important port. It was from here that the Cabots sailed in 1497. ,

*Stratford* was the home of Shakespeare.

*Swansea*, the chief port of Wales, is noted for copper smelting.

*Liverpool* is one of the greatest ports in the world;



it has docks seven miles long. Nearly all the cotton shipped into Europe first goes to Liverpool.

*Manchester*, the chief cotton manufacturing city of the world, is now a seaport, a ship canal, one of the finest in the world, having been made from the Mersey to Manchester.

*The Isle of Man* is a famous summer resort. The Manx language is spoken here. The Manx cats have no tails.

*Glasgow* is the second city of Great Britain in size; it has the greatest chemical works in the world, and is noted for shipbuilding and other manufactures.

*Ben Nevis*, near the south end of the Caledonian canal, is the highest mountain in the British Isles.

*Cape Wrath*, as its name indicates, is a rough and dangerous point of the coast.

*Londonderry* is a port at which mail is exchanged on steamers bound for Liverpool or Glasgow by the northern route.

*The Giant's Causeway* is a pavement reaching far out from the northeastern shore of Ireland toward the Scotch coast. It is formed of over 40,000 columns of basalt, and formerly extended across to Scotland.\* Because of the remarkable evenness of the blocks which formed the columns the peasants have a legend that is indicated in the name.

*Belfast*, the center of the Irish linen trade and the place where many of the finest ocean steamships are made, is the most prosperous city of Ireland.

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\*These columns are about 15 to 20 inches in diameter and 200 feet high. Most of them are six-sided, but a few have five, seven, eight or nine sides; of all the forty thousand one only is triangular.

*Dublin* was the old capital, and is the residence of the Lord-Lieutenant, who represents the British government.

*Queenstown* has the finest harbor in Europe.

*Cork* is the largest city of southern Ireland.

*Valentia Island* is the eastern end of several lines of Atlantic cables.

*The Lakes of Killarney* are famous for their fine scenery.

## NORTH AMERICA.

### I.

#### NEW ENGLAND.

If a class not already accustomed to working by this method should begin with North America, the first nine places named in the list will be enough for the first lesson. The rest may be assigned for two lessons.

The geography of our own country should be learned in closer detail than that of foreign lands. But the pupil in any North American country should also know more about Europe than about the remaining continents. It seems best to introduce the tracing and sketching method with the study of the map of Europe; then by the time the class has learned that continent, they will have more maturity and much greater strength to master the work on North America. One of the most marked advantages of this method noted by teachers who have used it is the increased power to master a map which it imparts and the increased interest which pupils take in the work.

But some teachers will prefer to begin with this lesson. The important thing is that they move slowly at first, master the lessons as fully as the pupils are expected to learn them, and keep in mind that there is to be no second going over the work; as the farmer says in plowing his corn the last time, we are now "laying it by." The teacher who begins with this lesson should read the suggestions and rules in the first lesson.

*St. Croix River* and *Passamaquoddy Bay*, the eastern boundary of Maine; the latter is an arm of the Bay of

Fundy, which has the highest tides in the world. At the upper end of the Bay of Fundy the ocean level rises and falls twice a day a distance of 70 feet.

*Eastport* is the most eastern town of the United States.

*Mt. Desert Island* is a summer resort.

*Penobscot Bay and River.* The river rises in northern Maine, a wild and mountainous forest region; it is not of much value for navigation, but great numbers of logs are floated down from the pine forests of the north and sawed at

*Bangor*, a great lumbering city.

*Kennebec River* rises in Moosehead Lake. What is a moose? What kind of horns does a moose have? The shape of this lake somewhat resembles the flat pronged antlers of a moose.

*Augusta* is the capital, and *Portland* the metropolis. Let pupils distinguish between capital and metropolis, also between capital and capitol.

*Portsmouth* is the only seaport of New Hampshire. It is due east of Milwaukee.

*The Merrimac River* is the greatest manufacturing river in the world.

*Lawrence, Lowell, Nashua and Manchester* are all noted for the making of woven fabrics, especially cotton and woolen goods.

*Concord*, the capital, has large wagon and carriage works.

*The White Mountains* are famous for fine scenery; *Mt. Washington* is the highest peak, over 6,000 feet high, and is the second highest point of land in the

United States east of Colorado. Many tourists visit this region every summer.

*Lynn* is famous for the manufacture of boots and shoes. The value of the boots and shoes made at Lynn each year is about equal to two-thirds of the annual output of all the gold mines in the United States.

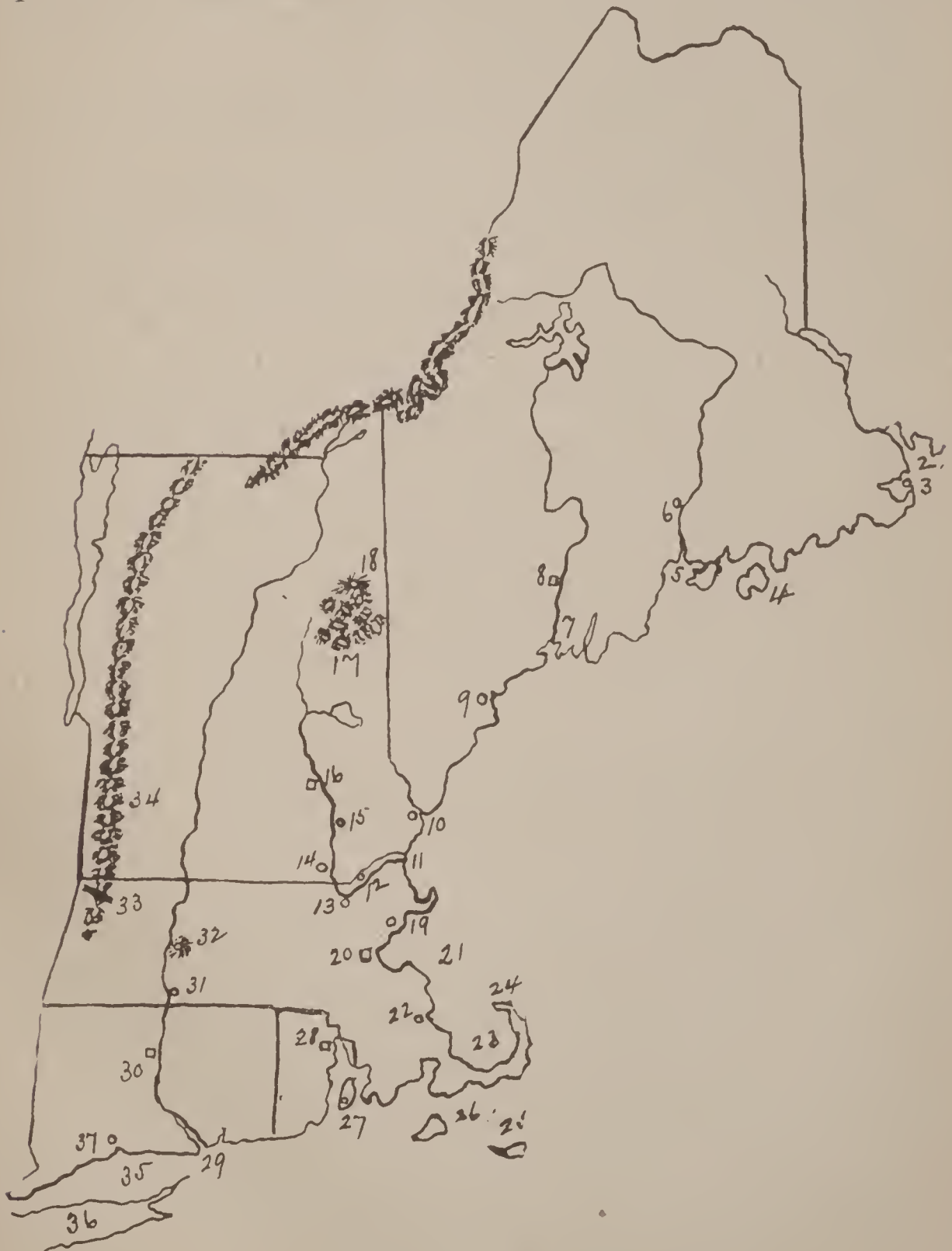
- |                             |                        |
|-----------------------------|------------------------|
| 1. St. Croix River.         | 20. Boston.            |
| 2. Passamaquoddy Bay.       | 21. Massachusetts Bay. |
| 3. Eastport.                | 22. Plymouth.          |
| 4. Mt. Desert Island.       | 23. Cape Cod Bay.      |
| 5. Penobscot Bay and River. | 24. Cape Cod.          |
| 6. Bangor.                  | 25. Nantucket Island   |
| 7. Kennebec River.          | 26. Martha's Vineyard. |
| 8. Augusta.                 | 27. Newport.           |
| 9. Portland.                | 28. Providence.        |
| 10. Portsmouth.             | 29. Connecticut River. |
| 11. Merrimac River.         | 30. Hartford.          |
| 12. Lawrence.               | 31. Springfield.       |
| 13. Lowell.                 | 32. Mt. Holyoke.       |
| 14. Nashua.                 | 33. Hoosac Tunnel.     |
| 15. Manchester.             | 34. Green Mountains    |
| 16. Concord.                | 35. Long Island Sound. |
| 17. The White Mountains.    | 36. Long Island.       |
| 18. Mt. Washington.         | 37. New Haven.         |
| 19. Lynn.                   |                        |

*Boston* is twice as large as Milwaukee and half as large as Chicago. In foreign commerce it ranks second in the United States. It is the metropolis of New England, has one of the finest harbors in America and is a famous railroad center. It is very irregularly laid out especially in the older portion, the streets being narrow and crooked. Let pupils turn to their histories and note the important events in the Revolutionary war which occurred near Boston.

*Plymouth* is a little, old town of no present or prospective importance. Why, then, do we care to know where it is? Plymouth Rock is a boulder partly buried in the earth, only a few feet in diameter.



It is nearly a quarter of a mile back from the seashore now; it was on this rock that "The Pilgrims" are supposed to have landed. It has not been moved; what



then is true of the shore at this point? Mrs. Hemans speaks of the Pilgrims landing on "a stern and rock-bound coast," but the shore is low and sandy for miles on either side of Plymouth. Not far from here are some fine cranberry marshes.

Turn to Longfellow's Miles Standish and see what he calls Plymouth Rock.

*Cape Cod* is a big sand bar or projection of sand hills extending out almost in a semicircle. Was it named on account of the fish, or do codfish take their name from this cape?

*Nantucket Island* and *Martha's Vineyard* are noted summer resorts. The latter formerly belonged to New York. Nantucket used to be a great center from which whale ships went out. [In review, the subject of artificial light is a good topic for pupils to write upon: tallow, whale oil, kerosene and electricity are the subtopics.]

*Newport* was formerly one of the capitals of Rhode Island. It is now noted chiefly as a summer resort for millionaires.

*Providence* is noted for the manufacture of fine jewelry; it is the capital and metropolis of Rhode Island. Why is Providence so called?

*The Connecticut River* is of small value for commerce, but furnishes water power for many factories. Note that in ascending this river we enter a narrow valley shut in by mountains on all sides, with no outlet to any other region of great importance. This fact and the fact that at its mouth there is no good harbor are very significant, and will be referred to later when we compare this river with the Hudson.

*Hartford*, the capital of Connecticut, has large factories; this city and Springfield, Massachusetts, manufacture most of the firearms that are made in this country. It is also famous for the making of watches.

*Springfield* has an arsenal in which half a million stand of arms can be stored. What is the difference between an arsenal and an armory?

*Mt. Holyoke* is the most prominent peak in Massachusetts.

*The Hoosac Tunnel* is a famous one, five miles long and cut through the solid rock of the Green Mountains. It required eighteen years to make it, and cost eighteen million dollars. Commercially it did for Massachusetts what the Erie Canal did for New York—opened a direct gateway to the great West.

*The Green Mountains* are an unbroken chain with flat tops running through the entire length of Vermont.

*New Haven* has a good harbor, and is the seat of Yale University.

*Long Island Sound* has picturesque shores. Smaller vessels from New York to New England ports navigate the sound, but the large ocean steamers keep in the open sea to the south of it.

*Long Island* is shaped somewhat like a fish, with the head to the west. It contains some valuable fishing places, and in the eastern part there is still some wild game. The southern shore is swampy, and large tracts of the island are waste land. It is a part of New York State.

Let the class draw an outline sketch of New England, putting in the other boundaries as well as the coast line

and the places above noted. Review the sketch map frequently and have the pupils make it from memory, practicing until they can do the work neatly and with a fair degree of correctness.

Observe that the straight boundary of Maine on the east is about equal to that on the northwest, and that the straight boundary on the west is the longest; that the shore is very jagged; that the cities are all south of the parallel of  $45^{\circ}$ , or in the southern third of the state, and that there are many small lakes in the northern part; that the extreme length of New Hampshire is just twice its width; that north of the White Mountains the state becomes very narrow; that its eighteen miles of sea shore is the eastern limit of a projection reaching out toward the east. Observe that up to the big bend of the Merrimac just above Lowell, the boundary runs parallel with the river and about three miles from it. Why the river was not made the boundary is easily understood when we remember that Massachusetts having been settled first had the prior claim to the river. Why were rivers more important in the early days than now?

Lake Champlain is a little more than half of the western boundary of New Hampshire. The western boundary of Massachusetts is not a north and south line. Connecticut is much wider at the west than at the east end and is only about half as long as Massachusetts.

A few salient facts like the foregoing should be pointed out in advance of the map drawing exercise.

History and geography should be correlated in teaching. Spend a few days on the important historic facts connected with some of the famous places in New England.

Maine is called "The Pine Tree State" and New



Hampshire the "Granite State." These names give a suggestion of some of the great products. In Maine the building of ships is an important industry; fishing is followed by many people along the coast; lumbering is carried on in the north, while in the level strip running parallel with the shore in the southern part there is considerable farming land. The coast of Maine has more good harbors than the whole coast from Chesapeake Bay to the Rio Grande.

## II.

### NEW YORK CITY AND VICINITY.

In presenting this topic the teacher should draw on the board the outline sketch on a very large scale, marking the places indicated by the first eleven numbers; when these are learned and the pupils are able to make the sketch from memory, the details may be filled in as indicated by the numbers above eleven in the list.

*Manhattan Island* is about 15 miles long and two miles wide. It is probably now the most valuable island of its size in the world, but the whole island was once bought for \$24. This island together with Long Island and Staten Island partly surround a body of water which is one of the finest natural harbors in the world. Long Island Sound being wide in the eastern part and narrowing towards the west, catches so much of the tidal wave which sweeps westward across the ocean twice a day, that the wave when it reaches the narrow outlet of the west end of the sound (Hell Gate) is considerably higher than the main portion of the wave when it strikes the mouth of the lower harbor between Sandy Hook and Coney Island. Consequently a strong current rushes through Hell Gate and down East River. This current scours the harbor and keeps



- |                       |                          |
|-----------------------|--------------------------|
| 1. Manhattan Island   | 15. Castle Garden        |
| 2. Long Island        | 16. Brooklyn Bridge      |
| 3. Staten Island      | 17. Brooklyn             |
| 4. New York Harbor    | 18. Governor's Island    |
| 5. Lower Harbor       | 19. Bedloe's Island      |
| 6. Newark Bay         | 20. Jersey City          |
| 7. East River         | 21. Hoboken              |
| 8. Hudson River       | 22. Newark               |
| 9. Hell Gate          | 23. Patterson            |
| 10. Harlem River      | 24. } Quarantine Islands |
| 11. Long Island Sound | 25. }                    |
| 12. Central Park      | 26. Sandy Hook           |
| 13. Broadway          | 27. Coney Island         |
| 14. Wall Street       | 28. Jamaica Bay          |

it clean without dredging. Were it not for this fortunate arrangement of the coast lines and channels, the silt from the Hudson River would long ages ago have choked up the harbor.

*The City of New York* occupies the whole of Manhattan Island and some of the main land east of the *Harlem River*. It is the largest city in the Western Hemisphere, and next to London, is the most important business center in the world. It has had a wonderful growth. At the time of the Revolution it was inferior to Philadelphia and Boston, and had only about 22,000 population. It has increased about a hundred fold since then. Some of the causes of this growth, besides the fact that it has such an excellent harbor, we shall discover as we proceed with these lessons.

*Greater New York* includes Brooklyn, Staten Island and the portion of Long Island and the mainland east of the Harlem shown in the sketch. Draw a line through Hudson river and around west of Staten Island, thus leaving on the left all the sketch that lies in New Jersey, and all the rest of the sketch represents Greater New York, now organized under one city government, and containing about 3,000,000 inhabitants—the second largest city in the world.

*Central Park* is one of the finest in the world, two and a half miles long and half a mile wide. It was originally a piece of ground so rough with bare rocks alternating with swamps that it was impossible to make it into city lots. Read the description of it in the cyclopedia.

*Broadway* is the principal street of the city. *Wall*

*Street* is on the line occupied in olden times by a wall for defense when the city was all on the part of the island south of that line. It is now famous as the place where the greatest business in stocks and banking in this country is conducted.

*Castle Garden* is the place where more than half the immigrants who have come to the United States have landed. The immigrants are now landed at Ellis Island, north of Bedloe's Island.

*Brooklyn Bridge* is a mile long and is the largest suspension bridge in the world; high masted vessels pass under it; one may stand on the bridge and look down on the tops of high buildings. It is crowded every day, and yet most of the traffic between the two cities is carried on by ferry boats.

Show a picture of the bridge and have pupils realize the fact that it is actually a "swinging" bridge, hanging on ropes—"cables"—passed over immense pillars at either end and tied to an anchorage sunk in the earth beyond the pillars.

*Brooklyn* is sometimes called the city of churches; also the sleeping place for New York because many people live in Brooklyn and do business in New York.

On *Governor's Island* are some forts; there are others on either side of *The Narrows*, the entrance to the harbor, just east of Staten Island. But these forts are old-fashioned and would be practically worthless as a defense against modern war vessels.

On *Bedloe's Island* is the statue of Liberty Enlightening the World, by Bartholdi, a French artist, presented to the United States by citizens of France. In the hand of the statue is a torch of electric lights which lights up the harbor.



*Hoboken* was formerly famous as a place where duels were fought. It was near here that Alexander Hamilton was killed by Aaron Burr.

*Newark* and *Patterson* on the Passaic River are important cities; the latter is noted for the making of locomotives.

*Quarantine Islands* are artificial islands at which the health department examines all ships coming into the harbor.

*Coney Island* is a fashionable summer resort.

The water supply of New York city is obtained from the Croton River, a small stream which flows into the Hudson forty miles north of the city. The immense aqueduct is one of the most famous works of the kind in the world and cost \$20,000,000. The old aqueduct crossed the Harlem River on arches of masonry, but the present one extends under the river.

*Hell Gate*, the rocky and formerly dangerous passage between East River and Long Island Sound was cleared of rocks a few years ago by tunneling under it and making a great blast with dynamite. Electric wires were connected with the dynamite in the tunnel and led to the superintending engineer's office; when everything was ready a little girl two years old was told to push the button connecting the poles, and the rocky bottom of the channel was thrown out of the water with an explosion like an earthquake. Small vessels bound for New England ports go through Hell Gate, but the ocean liners go through The Narrows.

The great importance of this city will justify spending several days in studying it. Let the pupils select ten states whose combined population does not exceed that of New York City. It has more

people than the state of Michigan or Wisconsin, and is of greater importance to the business interests of the world than both those states.

Chuck Purdy is a good book to read in connection with this lesson.

### III.

#### THE HUDSON AND THE DELAWARE.

*The Hudson* is famous for the beauty of its scenery, and it is also a stream of great commercial importance. Comparing it with the Connecticut, we note that they are about equal in size, and flow in the same direction, but in commercial importance they differ greatly. Ascending the Connecticut, the navigator finds himself in a narrow valley, hemmed in by mountains on either hand, from which there is no escape, except by climbing or turning back. But the Hudson has a great arm at right angles to its main course, reaching out toward the west in a level and in parts a somewhat swampy plain, which connects with the plains of the Oswego and the Genesee, reaching to Lake Erie without any mountain barriers, thus making it one of the most important doorways to the great West beyond the Appalachian mountain system.

Northward also by a short portage now spanned by a canal to Lake George, the Hudson valley opens into the St. Lawrence through Lake Champlain and the Sorrel. These facts, added to the advantage of a first-class harbor at its mouth, made it a matter of natural destiny that the great metropolis should develop at the mouth of the Hudson, rather than the Connecticut.

*Sing Sing* has a famous penitentiary.

*The Croton River* is the source of New York City's water supply.



1. Sing Sing.
2. Croton River.
3. West Point.
4. Poughkeepsie.
5. Catskill Mountains.
6. Albany.
7. Troy.
8. Erie Canal.
9. Mohawk River.
10. Adirondack Mountains.
11. Long Branch.
12. Atlantic City.
13. Cape May.
14. Cape Henlopen.
15. Delaware Bay.
16. Dover.
17. Brandywine Creek.
18. Wilmington.
19. Schuylkill River.
20. Camden.
21. Philadelphia.
22. Trenton.
23. Princeton.
24. Lehigh River.
25. Delaware Water Gap.

*West Point* is the seat of the United States Military Academy.

*Poughkeepsie* is the seat of Vassar College.

*The Catskill Mountains* are a group somewhat isolated from the system of which they are a part. They are very rugged, and being so near to large cities, are much frequented by summer tourists. Read the story of *Rip Van Winkle*.

*Albany*, the capital, is at the head of tide water, which means that twice a day the Hudson runs northward to this point, the water being pushed up by the rising tide.

Suppose we should mark the point to which the tide ascends in every river flowing into the ocean. Now think of a line drawn through all these points. Let us call the strip of land between this line and the seashore, the tide water region. Why is it not of uniform width? Where will the tide water region be the narrowest? Where widest?

Albany is the oldest town in the thirteen original states, Jamestown having passed out of existence. It was settled in 1614, is now half as large as Milwaukee, and has the finest capitol in this country except the one at Washington; the capitol at Albany cost \$12,000,000.

*Troy* is a large city six miles from Albany, and is first among American cities in the manufacture of shirts and collars.

*The Erie Canal* is the most important in this country; it joins Lake Erie and the Hudson.

*The Adirondack Mountains* are by far the wildest part of New York. They are densely wooded, and abound in game.

*Long Branch, Atlantic City, and Cape May* are famous summer resorts on the low, sandy shore of New Jersey.

*Dover* is the capital, and *Wilmington* the metropolis of Delaware. The latter is on *Brandywine Creek*.

*Philadelphia*, between the Schuylkill and the Dela-



ware, is the third city in size in the United States, being almost as large as Chicago. Its name means city of brotherly love; it is frequently called the Quaker City, and is sometimes known as the city of homes, because so many of the working people there own their homes. In the percentage of inhabitants who own their homes, Philadelphia and Milwaukee are nearly equal, and are at the head of the list among all the great cities of the world. Philadelphia is the greatest manufacturing city in America. It is famous as the old capital of the United States. It has the largest city building in the world, finished in 1895, at a cost of \$20,000,000. This is probably the finest, and certainly the highest building in the Western Hemisphere, not excepting the capitol at Washington, and ranks among the few great buildings of the world; it covers four acres of ground space, has 520 rooms, and the dome is surmounted by a statue of William Penn, 36 feet tall, the top of which is 573 feet high—18 feet higher than the Washington monument. Philadelphia is very regularly laid out, in this respect differing widely from Boston.

*Camden* and *Trenton* are important cities; the latter, the capital of New Jersey, is noted for the making of pottery.

*Princeton* is the seat of a great college.

*The Lehigh* is a river whose valley is famous for valuable coal mines. This region and northward to Scranton contains the greatest mines of anthracite, or hard coal, in the world.

*The Delaware Water Gap* is a famous gorge where the river has cut through the mountain, leaving rocky

walls 1000 feet high. The Delaware rises in the Catskill Mountains. How does it compare in commercial importance with the Hudson and the Connecticut?

## IV.

## THE CHESAPEAKE BASIN.



- |   |  |
|---|--|
| 1. Cape Charles.                              | 21. Blue Ridge Mountains.                  |
| 2. Cape Henry.                                | 22. Antietam Creek.                        |
| 3. Chesapeake Bay.                            | 23. Rappahannock River.                    |
| 4. Susquehanna River.                         | 24. Fredericksburg.                        |
| 5. Harrisburg.                                | 25. Chancellorsville.                      |
| 6. Seranton.                                  | 26. Rapidan.                               |
| 7. Catskill Mountains.                        | 27. York River and Yorktown.               |
| 8. Baltimore.                                 | 28. Mattaponi (Ma-Ta-Po-Ny).               |
| 9. Annapolis.                                 | 29. Pamunkey.                              |
| 10. Potomac River.                            | 30. Fortress Monroe and Old Point Comfort. |
| 11. Bull Run.                                 | 31. Hampton Roads.                         |
| 12. Mt. Vernon.                               | 32. Norfolk and Portsmouth.                |
| 13. Washington City and District of Columbia. | 33. Dismal Swamp.                          |
| 14. Rock Creek.                               | 34. Appomattox River.                      |
| 15. Frederick.                                | 35. Petersburg.                            |
| 16. Gettysburg.                               | 36. Appomattox Court House.                |
| 17. Shenandoah River.                         | 37. Richmond.                              |
| 18. Harper's Ferry.                           | 38. Charlottesville.                       |
| 19. Winchester.                               | 39. Natural Bridge.                        |
| 20. Luray Caverns.                            |  |

*Cape Charles* and *Cape Henry*, on the north and on the south sides of the entrance to the Chesapeake, are both in Virginia. The Potomac and a line eastward from its mouth is the boundary between Maryland and Virginia.

*The Chesapeake Bay* is by far the largest inlet on the Atlantic coast of the United States, and is deep enough for the largest vessels. All inlets on the Atlantic coast of North America, south of this bay, are shallow, north of it are deep. The name Chesapeake means "The Mother of Waters."

The east shore of the Chesapeake is uninteresting and has no cities, but the west shore receives many important rivers which flow through a country whose geography and history should be familiar to every student of United States history.

The boundary between Maryland and Pennsylvania is the old "Mason and Dixon line."

*The Susquehanna River* is shallow and has many rapids, consequently it is of little importance commercially. It has much wild and picturesque scenery.

*Harrisburg* is the capital of Pennsylvania.

*Scranton* is the most important city in the valley of the Susquehanna, and is in the center of the great hard (anthracite) coal region. The Susquehanna rises near the source of the Delaware and its course is nearly parallel with that of the Delaware.

*Baltimore* is the metropolis of the Chesapeake basin. It is the sixth city in size in the United States and the third in foreign commerce. It is called the "Monumental City" because of the many monuments which it contains. It is the seat of Johns Hopkins University. The population is about half a million.

*Annapolis* is the capital of Maryland and seat of the United States Naval Academy.

*The Potomac River* is the boundary between Maryland and Virginia. Above Washington it is of little use for navigation.

*Bull Run*, a little creek of no importance in itself, is famous in history as the scene of the first battle of the Civil War.

*Mt. Vernon* was the home and is the burial place of Washington; it is on the Potomac eighteen miles below Washington.

*Washington City* was laid out by President Washington. The plan was copied from that of Paris; the streets and avenues radiate from the capitol building as a center. It was his expectation that the city would be built chiefly to the eastward of the capitol; but the real



estate dealers determined otherwise, and it has grown mostly toward the west and north on the low ground toward the river. This made it necessary to remodel the capitol building and convert what was formerly the back of it into a front. Washington laid the corner stone of the capitol building in 1793. It was destroyed with other public buildings when the city was captured by the British in 1814. It was rebuilt, and extensive wings were built later making it until recently the finest building on this continent. It is now surpassed by the city hall in Philadelphia. The capitol covers  $3\frac{1}{2}$  acres, the Philadelphia city hall 5 acres; the capitol is 287 feet high, the hall is 537.

The public buildings of Washington are numerous and massive. The most important are the Treasury building, the Patent office, the Smithsonian Institution, and the Congressional Library Building. For a good description of the Smithsonian Institution, see *Popular Science Monthly* for Jan. 1896.

*The District of Columbia* was at first ten miles square and was donated to the Federal government by Virginia and Maryland, but Congress gave back to Virginia the part she had ceded. The District is governed directly by Congress; the people do not vote. The Federal government pays half the expense of the city government; the inhabitants of the District pay the other half.

*Rock Creek, Frederick, and Gettysburg* are of historic interest; *Harper's Ferry* is a little town at the grandly rugged water gap where the Potomac reinforced by the Shenandoah has cut its way through the solid rock of the Blue Ridge. It is celebrated as the scene of

John Brown's raid in 1859, and for the surrender of a Union force of 11,000 men to Stonewall Jackson in 1862.

*The Shenandoah* is the most historic valley in this country with the possible exception of the double valley of the Hudson and Lake Champlain.

*Winchester.* Read "Sheridan's Ride."

*The Luray Caverns* are more beautiful but much less extensive than the famous Mammoth Cave in Kentucky. The formations are strikingly peculiar in form, and for the most part are pure white. In summer several excursion trains each week run from Washington and Baltimore to take visitors to these wonderful caverns. They were discovered accidentally in 1878 by two boys who were hunting rabbits.

*Antietam Creek* was the scene of one of the severest battles of the Civil war.

At *Fredericksburg* Lee defeated Burnside.

*The York River* is only a short estuary or arm of the Chesapeake.

*Yorktown* is of no importance except historically. It was besieged in the Revolutionary War and in the Civil War.

The *Mat*, the *Ta*, the *Po*, and the *Ny* form the *Mat-tapony*; the peculiar naming of these rivers is the only interest that attaches to them.

*Fortress Monroe*, on *Old Point Comfort* is the largest fort in the United States; it cost about \$3,000,000 and covers 80 acres of ground. It was built to protect *Hampton Roads* and *Norfolk*.

In *Hampton Roads*, an arm of the Chesapeake, at the mouth of the James occurred on March 9, 1862, the first battle that ever was fought between iron ships. This

battle resulted in a complete change of naval warfare, and all the navies of the world had to be rebuilt. Read Longfellow's poem, *The Cumberland*.

*Norfolk* is an important commercial port, and at Portsmouth is a United States navy yard.

Norfolk is the commercial center of the peanut business, being the only great peanut market in the world. The value of this crop harvested in the region tributary to Norfolk amounts to about \$8,000,000 annually.

The site of *Jamestown* is interesting historically, but there has been no town there for more than 200 years; a ruined church tower is all that remains of the old town.

*Petersburg* on the Appomattox River was the scene of some very hard fighting just before the capture of Richmond.

*Appomattox Court House* is where Lee surrendered to Grant in 1865.

*Richmond* is a beautiful city at the head of tide water on the James. It was the capital of the Southern Confederacy, and the earthworks which were thrown up to defend it are still very prominent objects of interest to the visitor. The city has more than doubled in population since the war.

*Charlottesville* is the seat of the University of Virginia, the oldest state university in this country.

*The Natural Bridge* is one of the great wonders of America; it is 215 feet high and 100 feet wide, with a span of 80 feet and affords a convenient passage for a wagon road over a deep ravine. Trees and bushes grow on the top, so that a person may cross it and not be

aware of the fact. This bridge is visited every year by many tourists.

#### SOME FACTS REGARDING THE REGION OF THE CHESAPEAKE.

Delaware is the lowest state in the Union and is divided into three counties. John Randolph once said that the Delaware senators represented three counties at low tide and one county at high tide.

The Chesapeake basin produces more oysters than any other equal area of the earth's surface. This is also a famous region for fruit; the shipping and canning of fruit and oysters constitute a large industry at Baltimore. The finest canvas-back ducks are numerous in the swamps around the Chesapeake; they feed on wild celery which gives the meat a fine flavor.

The mouths of the Chesapeake rivers are wide estuaries. The tide water region is wide. (See page 72.)

Many Virginia county seats have the letters C. H. (Court House) written after them. This is a mark of the old times when in many cases there was no town at the county seat, the whole region being devoted to agriculture, each large plantation producing nearly everything necessary to the simple mode of living in the early days.

The Chesapeake Basin will furnish matter for several lessons. A region so rich in historical associations should receive considerable attention. History, literature and geography may here be combined with profit. The story of the bombardment of Fort McHenry near Baltimore, and the writing of the Star Spangled Banner by Francis Key will excite the enthusiasm of a class if well presented. Let them read and sing the Star Span-



gled Banner. In connection with the work on the Shenandoah use Sheridan's Ride. When the boys are intoxicated with the account of the great naval battle in Hampton Roads have them read Longfellow's The Cumberland. Even Whittier's fanciful fiction Barbara Frietchie, though probably destitute of any basis of historic fact, is worth reading in connection with the lesson on the Potomac. Harper's Ferry suggests the singing of "John Brown's Body."

But much of this is not geography? True; but the critic who makes this objection is probably the same one who says that these tracing and sketching lessons emphasize the dots and lines unduly and do not give enough prominence to the "mental pictures," the imagination, the emotions. If you have found thus far that the lessons interest the pupils and that they are gaining definiteness in what was before a hazy subject you will not be disturbed by the ponderous philosophical critics; they never taught real children anyway.

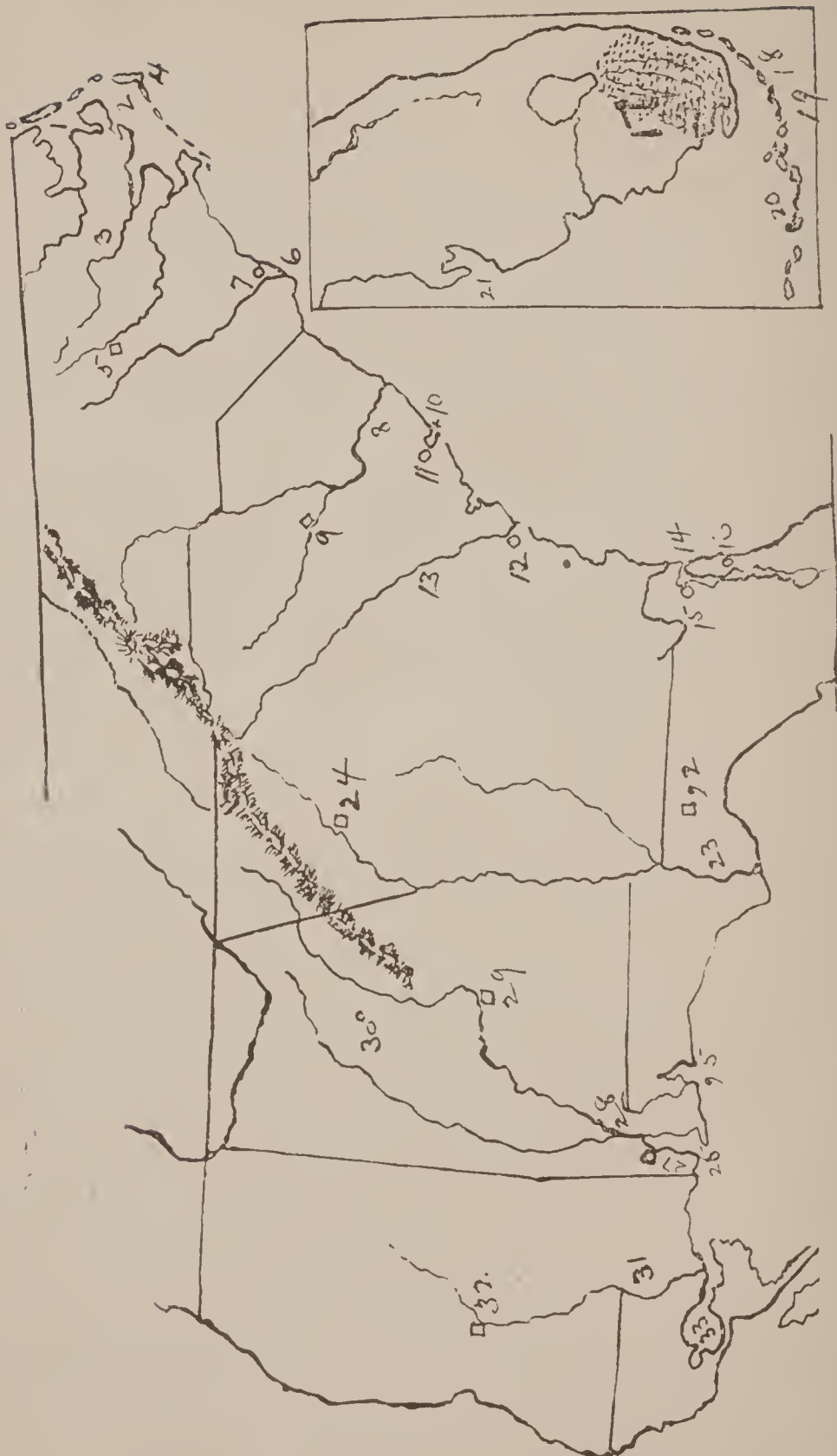
## V.

### SOUTHERN STATES EAST OF THE MISSISSIPPI.

The coast of the Southern States is low and sandy. About halfway between the seashore and the Alleghany Mountains is a terrace or chain of hills running parallel to the mountains and the coast. Northwest of this the surface is a somewhat hilly plateau. The terrace makes rapids in the rivers which furnish considerable water power; but eastward from the terrace the course of the rivers is very sluggish.

*Albermarle and Pamlico Sounds* are large bodies of shallow water shut off from the deep ocean by long, narrow sand islands.

*Tar River* is suggestive of one of the products of the pine forests of North Carolina. Teach something of



SOUTHERN STATES EAST OF THE MISSISSIPPI.

the uses of tar, pitch, turpentine and rosin, and show specimens to the class. Calking, roofing paper, paint,

varnish, sealing wax, shoemaker's wax, etc., should be mentioned. The products of pitch pine forests are called naval stores.

- |                       |                          |
|-----------------------|--------------------------|
| 1. Albermarle Sound.  | 18. Florida Keys.        |
| 2. Pamlico Sound.     | 19. Florida Strait.      |
| 3. Tar River.         | 20. Key West.            |
| 4. Cape Hatteras.     | 21. Tampa Bay.           |
| 5. Raleigh.           | 22. Tallahassee.         |
| 6. Cape Fear.         | 23. Appalachicola River. |
| 7. Wilmington.        | 24. Atlanta.             |
| 8. Santee River.      | 25. Pensacola Bay.       |
| 9. Columbia.          | 26. Mobile Bay.          |
| 10. Fort Sumter.      | 27. Mobile               |
| 11. Charleston.       | 28. Alabama River.       |
| 12. Savannah.         | 29. Montgomery.          |
| 13. Savannah River.   | 30. Birmingham.          |
| 14. St. John's River. | 31. Pearl River.         |
| 15. Jacksonville.     | 32. Jackson.             |
| 16. St. Augustine.    | 33. Lake Pontchartrain.  |
| 17. The Everglades.   |                          |

*Cape Hatteras* is a rough and dangerous point where many shipwrecks occur.

*Raleigh* the capital is on the *Nuseses*.

*Cape Fear* is a name which suggests the dangerous character of the coast at this point.

*Wilmington* has a large trade in naval stores and is the largest city in North Carolina.

On a branch of the *Santee* is *Columbia*, the capital of South Carolina. One of its head waters rises near Mount Mitchell (Blue Dome) the highest point of land east of the Mississippi River.

*Fort Sumter* is a famous historical ruin on an island at the entrance to the harbor of *Charleston*, the metropolis of the South Atlantic States. Charleston harbor is one of the safest on the Atlantic; the city is about one-fourth as large as Milwaukee.

*Savannah* is somewhat smaller than Charleston

and is on the *Savannah River*, the boundary between South Carolina and Georgia.

*St. John's River* is a chain of small lakes, with a very slow current; a peculiarity of it is the fact that it flows throughout its whole course nearly parallel to the coast and very near to it.

*Jacksonville* is noted as a winter resort.

*St. Augustine* is, with perhaps one exception, the oldest town in the United States. It has some of the finest hotels in the world.

*The Everglades* are extensive swamps in southern Florida.

*Florida Keys* are a chain of islands of coral formation extending out into

*Florida Strait*. This is a region in which many shipwrecks occur.

*Key West* is an important city, the metropolis of Florida, on a coral island sixty miles from the main land. Sponge fishing, the manufacture of cigars and "wrecking" are the chief industries. About a fourth of the inhabitants make a livelihood by wrecking, that is, rescuing vessels which are wrecked on the reefs. These reefs are very dangerous to navigation.

*Tampa Bay* is where DeSoto landed in 1539 with the exploring party which two years later discovered the Mississippi. Some of the herd of 300 hogs which he brought with him escaped, and their descendants are still found in the swampy forests of southern Florida; they are wild and fierce.

*Tallahassee*, the capital of Florida is an unimportant inland town.



On a branch of the *Appalachicola* (the Chatahoochee) is *Atlanta*, the capital and metropolis of Georgia, a fine manufacturing city. A factory in Atlanta which was used during the war for the making of swords and bayonets, afterwards became a plow factory.

*Mobile Bay* is famous for the naval battle fought there in the Civil War. At *Mobile* there are extensive manufactories. Chewing gum and cotton seed oil are made in large quantities.\*

On the *Alabama River* are *Montgomery*, the capital, and *Birmingham*, a new city of rapid growth, where much iron is mined and manufactured.

We may reach New Orleans by way of *Lake Pontchartrain*, but the usual route is by way of the Mississippi river.

The Atlantic shore of the Southern States produces much rice, and the islands along the shore produce a very superior variety of cotton known as sea-island cotton; it has an unusually long fiber and is used in making the best kinds of sewing thread. The climate of these islands is unhealthful, and white men cannot live upon them with safety.

## VI.

### THE MISSISSIPPI BASIN AS A WHOLE.

Let the pupil start at Lake Pontchartrain and go to the west bank of the Mississippi without crossing any natural water course. His route will be north and then

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\*The annual expenditure for chewing gum in the United States is about \$27,000 000, over five times the amount spent for schoolbooks. The so called olive oil used in this country is mostly made from cotton seed. Nearly all the "lard" of commerce is composed in part of cotton seed-oil. So also is much of the "butter" of commerce. The annual product of cotton seed oil in the United States is worth \$200,000 000, and nine-tenths of it is used for food; since it is neither a drying nor a non-drying oil it cannot be used either for paints or for lubricating purposes.

northeast through Mississippi, Alabama, Georgia, Tennessee, North Carolina, Virginia, West Virginia, Maryland, Pennsylvania and New York. Then westward through Pennsylvania, Ohio and Indiana; northward through Illinois and Wisconsin to Michigan; westward through Wisconsin, Minnesota, North Dakota and Canada; southeast through Montana, National Park, Wyoming, Colorado, New Mexico, Texas and Louisiana. The shape of the basin is indicated here.



The principal stream is indicated by a continuous line, and its chief tributaries are shown in dotted lines. The mistake which was made in *naming* the streams (giving one name—Mississippi—to the lower portion of the great river and one of its tributaries) should not prevent us from seeing the fact that the great river of this basin rises in the western part of Montana and flows southeastward into the gulf, a distance of about 4200 miles. This stream flows through about the middle of the area drained by it, and receives two large tributaries on each side, viz, the Red and the Arkansas on the west, and the Ohio and (Upper) Mississippi on

the east. The Kansas, Platte, James, Dakota and Yellowstone are smaller tributaries in its upper course.

Should there be any lingering doubt as to the correctness of this view—and there probably will be, for the force of names is very strong—the teacher may outline each of the tributary basins. A line drawn southward from Cairo, Ill., through Tennessee and Mississippi and eastward through Alabama joining the boundary of the great basin in northern Alabama, and another northward from Cairo to Chicago will set off the Ohio basin. A line from Alton, Ill., to Chicago, and another from Alton to the southwest corner of Minnesota, thence north to the edge of the great basin defines the Upper Mississippi basin. Note what each contains:

## OHIO BASIN.

One-third of Illinois.  
Most of Indiana.  
Three-quarters of Ohio.  
Nearly one-half of Pennsylvania.  
A small part of New York, Maryland, Virginia, North Carolina, Georgia, Alabama, and Mississippi.  
Nearly all of West Virginia, Kentucky, and Tennessee.

## UPPER MISSISSIPPI BASIN.

One-half of Illinois.  
Two-thirds of Wisconsin, Iowa and Minnesota.  
One-fifth of Missouri.  
A small part of Michigan.

If it would be manifestly incorrect to apply the name Ohio to the river from Pittsburg to the Gulf, much more evident must it be that the small tributary from Lake Itasca to Alton is not to be regarded the main stream.

In describing his journey around the rim of this great basin let the pupil note where his path is mountainous and where level; he should bear in mind always that he is on a water shed, the highest land in the vicinity. Note at what points three slopes meet, viz:

In North Carolina.	{ Mississippi. Gulf. Atlantic.
In Pennsylvania.	{ Mississippi. Atlantic. St Lawrence.
In Minnesota.	{ Mississippi. St Lawrence. Hudson's Bay.
In Montana.	{ Mississippi. Hudson's Bay. Pacific.
In Colorado.	{ Mississippi. Pacific. Gulf.

This basin is about half as large as Europe and constitutes the great core of North America. It is about 5,000 miles in circuit. It may be cut into production zones as follows: South of Arkansas is the sugar region. The parallel of  $36^{\circ} 30'$ , the north line of Arkansas, defines the limit of the cotton crop. All the region north of this has a variety of products, chiefly live stock and cereals. In the eastern extremity is the greatest petroleum region of the world. In the southeastern part is iron; in the northern, iron and lumber; in the western, gold and silver.

It is estimated that this river carries into the gulf each year a quantity of earth equal to a mile square and 263 feet deep. The effect of this is seen by a glance at the map which shows the mouth projecting far into the gulf.

Read that part of Longfellow's *Evangeline* which describes the journey of the Acadians down the Ohio, the Mississippi and the Atchafalaya rivers, and note especially the description of scenery. The Atchafalaya



is a bayou which leaves the main stream at the mouth of the Red River and takes a short cut southward to the gulf.

In the lower 1600 miles of its course the river bed is higher than the surrounding land. The water is held in by embankments called levees. For some distance below the mouth of the Ohio the river is nearly a mile wide, but at New Orleans, it is less than half a mile wide. This diminution is not due to evaporation and the absence of tributaries as in the Nile, but is due to a deepening of the channel in the lower course.

Place a yardstick on the table in a perfectly level position; now place a sheet of common writing paper under one end of it and you will have a slope greater than that of the river from St. Paul to the gulf.

Find the meaning of the terms jetties, bayou, lagoon, levee, crevasse. Find how and at what time each part of this basin came into possession of the United States. The next lesson will take up the tracing of this basin in detail. Read from books in your library about New Orleans, the Red River Raft, the Mammoth Cave, the oil region of Pennsylvania, and Yellowstone Park.

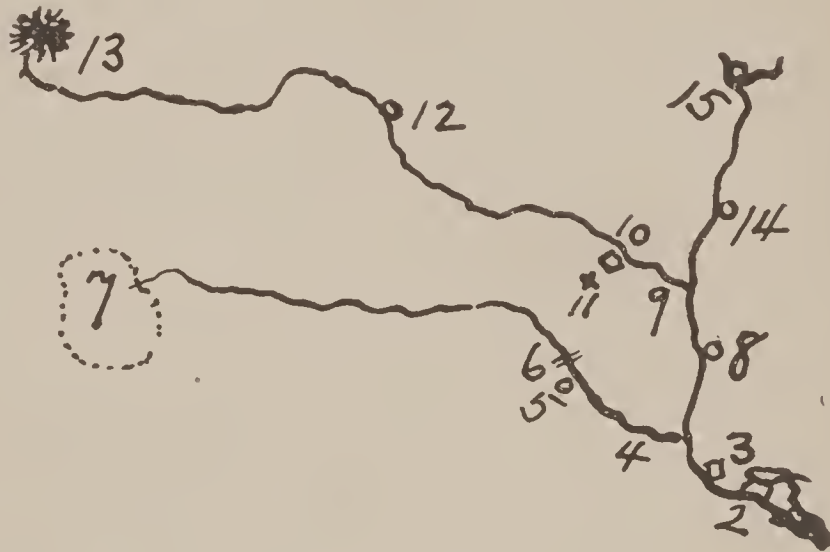
If you do not have a cyclopedia try to have enough of the school library fund set aside to buy a serviceable one. The expense is not great.

## VII.

### THE RED AND THE ARKANSAS.

*The Jetties* are artificial banks on either side of one of the mouths of the Mississippi, constructed partly of wicker work weighted with rocks and earth to confine

the water to one mouth so as to wash the sediment out and keep a clear channel for vessels. They were planned by Captain Eads and built by the government of the United States.



- |                    |                    |
|--------------------|--------------------|
| 1. The Jetties.    | 9. Arkansas River. |
| 2. New Orleans.    | 10. Little Rock.   |
| 3. Baton Rouge.    | 11. Hot Springs.   |
| 4. Red River.      | 12. Wichita.       |
| 5. Shreveport.     | 13. Pike's Peak.   |
| 6. Great Raft.     | 14. Memphis.       |
| 7. Llano Estacado. | 15. Cairo.         |
| 8. Vicksburg.      |                    |

*New Orleans* is called the Crescent City because it was built around a curve of the river in the form of a new moon. It has grown around another curve so that now it is shaped somewhat like the letter S. It is about the size of Milwaukee. Less than one-fifth of the inhabitants are of American or English descent. New Orleans is the largest cotton market in the world, and is second in the United States in the extent of its export trade. The fact that the city is built on ground from two to six feet below the surface of the river gives rise to some conditions of life which are peculiar. There are no sew-

ers; the drainage is through open gutters on the street; these lead to a basin from which the sewage is pumped into Lake Pontchartrain. Cellars and basements are unknown. The earth a few inches below the surface is saturated with water so that a hole dug in the ground soon fills with water. Consequently in the cemeteries are vaults built above ground, instead of graves.

Let the class now learn or review the historic facts that are associated with New Orleans in the War of 1812 and the Civil War.

*Baton Rouge*, the capital, is so called from an immense red cypress tree which was there when the place was first settled. It was straight, free from limbs except at the top, and of a reddish color. Some one playfully suggested that it would make a fine walking cane. Baton Rouge is the French for red staff.

*The Red River* is so called from the red mud which it washes down into the Mississippi. It is navigable as far as Shreveport, but above that point is the famous "Red River Raft," a mass of driftwood which chokes the river channel for miles and which grows by accumulation from above as fast as it becomes loosened and floats away from below. Considerable money and effort have been expended to cut a channel through it, but it still offers an obstruction to navigation. The Red River is the southern boundary of the Indian Territory (more properly Indian Nation) and rises on the eastern edge of the

*Llano Estacado*. (See page 104.)

*Vicksburg* is a small city, not very important com-

mercially; it is famous chiefly for its importance in the Civil War.

*The Arkansas* is the longest tributary of the Mississippi but it is not an important river commercially.

*Little Rock* (named from a peculiar rock in the river) is the capital and metropolis of Arkansas; a few miles away is

*Hot Springs*, famous as a winter resort.

*Wichita* is one of the largest cities of Kansas.

*Pike's Peak* is nearly three miles high. A railroad extends to the top. The ascent is made by many tourists every summer.

*Memphis* is a flourishing city about a fourth as large as New Orleans. In 1878 and 1879 about a fifth of the population died of yellow fever. An improved system of sewerage was put in, and it is now said to be one of the most healthful cities in the United States. This is the lowest point at which the Mississippi is bridged.

*Cairo*, at the mouth of the Ohio, has not developed the commercial importance which its position led many people to expect. Had rivers remained the great highways of commerce Cairo would have been a large city; but in the last thirty years inland commerce has been carried on mostly by rail. This city was an important depot of supplies in the Civil War. Why? The map suggests why.

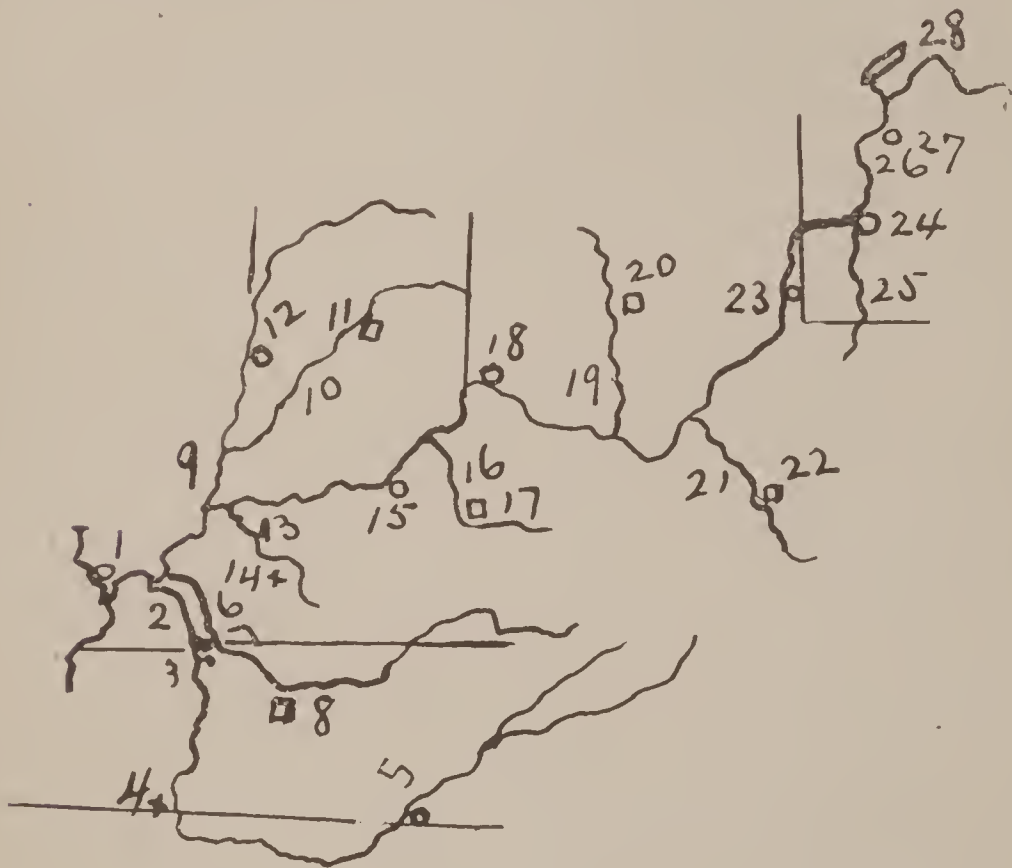
## VIII.

### THE OHIO BASIN.

This is the largest and most important of the valleys tributary to the Mississippi. It is of great historic and commercial interest. A dispute as to its possession



gave rise to the French and Indian War—a war which involved some momentous issues. That the English language, the Anglo-Saxon form of civilization, Protestantism, the principles of Magna Charta, and the English common law should prevail in North America was determined by the outcome of that war in 1763.



- |                      |                                |
|----------------------|--------------------------------|
| 1. Cairo.            | 15. Louisville.                |
| 2. Tennessee River.  | 16. Kentucky River.            |
| 3. Fort Henry.       | 17. Frankfort.                 |
| 4. Shiloh.           | 18. Cincinnati.                |
| 5. Chattanooga.      | 19. Scioto River.              |
| 6. Cumberland River. | 20. Columbus.                  |
| 7. Fort Donelson.    | 21. Kanawha River.             |
| 8. Nashville.        | 22. Charleston.                |
| 9. Wabash River.     | 23. Wheeling.                  |
| 10. White River.     | 24. Pittsburg (Fort Duquesne.) |
| 11. Indianapolis.    | 25. Monongahela River.         |
| 12. Terre Haute.     | 26. Alleghany River.           |
| 13. Green River.     | 27. Oil City.                  |
| 14. Mammoth Cave.    | 28. Chautauqua Lake.           |

*The Ohio* formed the great route through which emigration moved when it began to spread westward beyond the Alleghany mountains, and later it became the boundary between the free and the slave portions of the West.

Remembering that Tennessee joined the confederacy but Kentucky was neutral, can you discover from the map why forts Henry and Donelson were built?

*Chattanooga* has developed great commercial importance since the war. Read about the battles of Chickamauga and Lookout Mountain.

*Nashville* is one of the finest cities in the South and is noted as an educational center.

*The Wabash* river is not of much importance for navigation. Its valley is very fertile. So also is the valley of the *White*.

*Indianapolis* is one of the largest inland cities in the United States.\* It is one of the greatest railroad centers of the country, having fifteen lines.

*Terre Haute* is a beautiful little city on the Wabash. The name means "high land." It is only relatively high, the lower part of the Wabash valley being very low.

*Mammoth Cave* is the largest known cavern. It has been explored a distance of ten miles from its mouth; in some places the height of the chambers is from 100 to 300 feet. It contains a river in which are fishes without eyes.

*Louisville* is the largest city south of the Ohio River

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\* Inland here means not situated on navigable water. Denver is the only other large inland city in this country. Let pupils find, if they can, other inland cities in any country as large as these. Why are most cities near navigable water?

except New Orleans. It is the largest leaf tobacco market in the world.

*Cincinnati*, called the "Queen City," is the metropolis of the Ohio Valley, and is noted for the beauty of its suburbs. It is somewhat larger than Milwaukee. It was named in honor of the Society of the Cincinnati.\*

*Columbus* is another great railroad center. It has been claimed that for fine and costly public buildings no city in the United States, except Washington, surpasses Columbus; but since the building of the city hall in Philadelphia it is probably third in this respect.

*Wheeling* is a manufacturing city and produces much glass and pottery.

*Pittsburg* is almost as large as Milwaukee. It used to be called the Smoky City, but since 1883 it has had a clearer atmosphere on account of the discovery of natural gas, which is now used for fuel both in the homes and the factories. It is famous for the production of coal, iron and glass, and has the greatest cork factory in the world. Everything made of iron is produced here, from a carpet tack to a fifty-eight-ton gun. Read about Fort Duquesne and Braddock's defeat.

*Oil City*, as its name indicates, is in the great oil region. This is the greatest petroleum field in the world; 30,000,000 barrels is the annual production. This industry employs as many men as the coal mining and iron trade in the United States. Read up on the subject and

---

\* Read the story of Cincinnatus in Roman history. The revolutionary soldiers having "left the plow" for the army and having again returned to peaceful pursuits some of them formed a society known as the Cincinnati—a sort of G. A. R. of that time. But unlike the G. A. R., membership was restricted to commissioned officers and their descendants. Franklin and other public men disapproved of this undemocratic organization, believing that it might prove the nucleus of a hereditary aristocracy, and so they discouraged it. It soon died out.

make it the special topic for at least two lessons. Here are some points:

This oil region began to be developed in 1861. Wells bored into solid rock; some of them flow without pumping. When a well runs dry a large dynamite cartridge dropped to the bottom will start it again. Oil thick, dark colored, with disagreeable smell. Great refineries in Philadelphia and Cleveland. Not carried to refineries on trains, but pumped through iron pipes. Total length of pipe-lines would more than encircle the earth. After the discovery of petroleum, whales increased greatly in numbers. Why? How did Edison lower the price of kerosene? Formerly great cities were not lighted; those who went out at night carried lanterns and went armed or with guards. Cheap light makes government of cities easier. What relation does the University of Chicago have to kerosene? Who is John D. Rockefeller?

*Chautauqua* on a lake of the same name is a famous summer resort, noted for the annual assembly of the Literary and Scientific Circles founded by Dr. Vincent.

## IX.

### THE UPPER MISSISSIPPI BASIN.

"The oldest town in Illinois," *Kaskaskia*, is no longer a town; like old Jamestown it has disappeared.

*St. Louis* is about one-third as large as Chicago, and is the largest city in the Mississippi basin. It manufactures more tobacco than any other city of the world. There are two bridges across the Mississippi here, the Eads and the Merchants'. The Eads is one of the famous bridges of the world, and was built by Captain Eads, the engineer who built the jetties at the mouth of the river. This city produces more flour than any other in America except one. *St. Louis* grew because of its river trade; note its position near the junction of three rivers. In 1896, a cyclone destroyed a large part of the city and partially wrecked the great bridge.



*The Missouri River* is really the main stream, the so-called Upper Mississippi being a tributary.

1. Kaskaskia River.
2. St. Louis.
3. Missouri River.
4. Illinois River.
5. Sangamon River.
6. Springfield.
7. Peoria.
8. Joliet.
9. Aurora.
10. Waukesha.
11. Quincy.
12. Des Moines River.
13. Des Moines.
14. Rock Island.
15. Rock River.
16. Rockford.
17. Madison.
18. Dubuque.
19. Wisconsin River.
20. The Dalles.
21. La Crosse.
22. Winona.
23. St. Croix River.
24. St. Paul.
25. Minnesota River.
26. Minneapolis.
27. Lake Itasca.



*The Illinois River* in the days before the railroad era was of great importance commercially. It is connected by a canal with Lake Michigan. The new canal connecting these bodies of water is one of the great canals of the world, being considerably larger than the Suez Canal. It was built primarily for draining the city of Chicago.

*Springfield*, on the *Sangamon*, is the capital of Illinois, the old home and the burial place of Lincoln.

*Peoria* is the greatest center for the manufacture of high-wines in the world. High-wine is a fluid made from corn and rye, and is the raw material out of which whisky is manufactured.

*Aurora* is an important manufacturing and railroad city.

*Waukesha* is famous for its water which is supposed to have curative powers. Invalids in great numbers go there in summer.

*Quincy* is a large and well built city, the third in size in Illinois.

*Des Moines* is the capital and the metropolis of Iowa.

At *Rock Island* is a United States armory and arsenal occupying a large island in the river.

*Rockford* has great water power, and is an important manufacturing city.

*Madison*, the capital of Wisconsin, the seat of the University of Wisconsin, is one of the most beautifully situated cities in the United States.

*Dubuque* is the oldest city in Iowa and is the center of the old lead region of the Northwest.

The *Dalles* of the Wisconsin are cliffs, islands and chasms worn in the soft sandstone by the erosion of the river, and present highly picturesque scenery.

*La Crosse*, the second city of Wisconsin, is a great lumber market.

*Winona* is the seat of one of the state normal schools of Minnesota.

*St. Paul* and *Minneapolis*, ten miles apart, have grown almost together. They are called the Twin Cities. The one is the capital, the other the metropolis of Minnesota. In the production of flour, Minneapolis is the leading city of the United States.

*Lake Itasca* is the source of the Mississippi River.

The Upper Mississippi is noted for beauty of scenery. Pine forests abound in the upper valleys of all its main tributaries above Dubuque; but most of the area of the Upper Mississippi basin is an agricultural region.

In each state the teacher should apply the general method to the teaching of the state in detail. A dozen or more places in Wisconsin besides those above named should be noted by Wisconsin teachers in presenting this river and its tributaries. So with Iowa and Illinois points for teachers in those states.

## X.

### THE MISSOURI BASIN.

*The Missouri River* is noted for the frequent changes of channel which the stream makes; it brings down much more sediment than the Upper Mississippi. The name is an Indian word for Big Muddy.

*St. Louis*, (see page 96.)

*Jefferson City* is a town of no consequence except as the capital of a great state, and a movement is now on foot to move the capital to

*Sedalia*, a beautiful and flourishing inland city about forty miles farther westward.

*Kansas City*, in the extreme western part of Missouri, has had a remarkably rapid growth; a suburb by the same name over the line in Kansas is also growing rap-

idly. The combined population is about 200,000. Kansas City is built on steep hills or bluffs overlooking the river.



- |                     |                           |
|---------------------|---------------------------|
| 1. St. Louis.       | 11. South Fork of Platte. |
| 2. Jefferson City.  | 12. Denver.               |
| 3. Kansas City.     | 13. Cheyenne.             |
| 4. Kansas River.    | 14. Dakota River.         |
| 5. Topeka.          | 15. Yankton.              |
| 6. St. Joseph.      | 16. Pierre.               |
| 7. Lincoln.         | 17. Black Hills.          |
| 8. Platte River.    | 18. Bismarck.             |
| 9. Omaha.           | 19. Yellowstone River.    |
| 10. Council Bluffs. | 20. Yellowstone Park.     |

*The Kansas River, or Republican Fork* is of no use for navigation, having a broad, shallow channel; in some seasons it is nearly dry.

*Topeka* is the capital of Kansas.

*St. Joseph*, a city of about 50,000, was famous in pioneer times as a point at which wagon trains were made up to cross "the plains" and the mountains into



California. (Why did they go in "trains?") In later years its growth has been checked by the competition of Kansas City and

*Omaha*, the metropolis of Nebraska, a city about the same size as Kansas City. The largest silver smelting works in the world are at Omaha; they handle a fourth of all the silver mined in the United States.

*Council Bluffs*, in Iowa, opposite Omaha, was formerly a meeting place of Indian tribes for consultation. For a long time it was the last village on the extreme western limit of civilized America, and like St. Joseph was a point at which trappers got their outfits before entering the Indian country beyond, and where emigrants to the Pacific coast organized their companies to travel together for protection against hostile tribes.

*Lincoln* is the capital of Nebraska.

*The Platte* river is useless for navigation and resembles the Kansas.

*Denver* and Indianapolis are the largest inland cities in the United states. Denver is situated on what was once a dry, treeless plain. It is built almost entirely of stone and brick, and the streets are well shaded. The city grew because of the mining industry. Why are there no steamboats in Colorado?

*Cheyenne*, the capital of Wyoming is a great shipping point for beef cattle.

*Yankton* is at the mouth of the Dakota River. Pierre is the capital of South Dakota and *Bismarck* of North Dakota.

*The Black Hills* are mostly covered with pine forests. This region produces gold.

*The Yellowstone River* rises in *Yellowstone Park*, a region noted for its wonderful scenery, hot springs, geysers and mud volcanoes. The description of this region as given by John Colter, a hunter and trapper who discovered it, was so incredible that the people of St. Louis where he afterward lived thought that in his wanderings he had become insane, and they paid little attention to his account of the boiling springs of mud having all the colors of the rainbow, and of geysers that throw boiling water hundreds of feet into the air. Those who heard him tell of his discovery called it "Colter's hell," and thought it was all a matter of the old man's imagination.

The teacher should gather from all available sources vivid descriptions and pictures of the Yellowstone Park, and should also have the pupils compare its area with that of some of the states east of the Mississippi. Werner's Grammar School Geography gives the following description of

#### THE YELLOWSTONE PARK.

In the northwestern part of Wyoming, extending a little into Montana and Idaho, are 4,000 square miles which form the Yellowstone National Park, and contain more natural wonders than any other region.

Ages ago there was a deep rocky basin on the eastern side of the Great Divide of the Rocky Mountains. There the earth's crust broke, and melted lava surged up from below, filling the basin and running over its sides upon the surrounding country. When this lava flow ceased, its surface cooled, leaving a black, solid crust to protect the fiery interior. The snows of winter melted into numerous brooks; some of the water penetrated the cracks in the lava crust and became underground streams, which soon came in contact with the fires beneath. The waters were changed to steam, whose explosive force tore up the rocks, till, hard as they were, they were crumbled to soft powder. Then came the ice age, and the movement of the ice continued the work of tearing away the lava blocks and of wearing deep valleys across their surface. When the ice melted, the water cut great gorges or canyons for its bed, or remained as lakes in the old depressions, or reached the fiery rocks beneath to be constantly hurled back again as steam and boiling water. Grass and flower seeds were brought by winds and birds from the valley below; these took root and grew, and trees, chiefly the red fir and mountain pine, sprang up.

This wonderful region was for a long time known only to the buffalo, elk, bear, porcupine and beaver, the wild goose, the eagle and other birds. John Colter, a hunter, was the first white man to cross this region, and he reported what he had seen; he told about the strange geysers, some of which send forth boiling water 250 feet high, which explode after longer or shorter intervals, some of them coming from high mounds which have been made by the deposits from the water, others issuing directly from the level ground; about the blue ponds of boiling water, hot enough to boil fish; about the springs whose hot water poured over terraces beautifully colored while all the land around was white and desolate; about the basins of bubbling red, white, yellow and brown mud called "paint pots;" about the sulphur fumes which came from holes in the forest; about the beautiful Yellowstone Lake, thirty miles long, filled with trout; and about the clear Yellowstone River which a few miles from the lake passes over a fall a hundred feet high, and still farther away plunges over a cliff 260 feet high (the Lower Falls of the Yellowstone) into the Grand Canyon of the Yellowstone, where it rushes, foaming, between steep walls of bright red, yellow, gray, and purple colored rock cut into fantastic shapes.

These stories seemed too wonderful to believe. In 1871 the United States geologist sent out a party for systematic exploration, and Congress, the following year, set apart this whole region as a "public park or pleasuring ground for the benefit and enjoyment of the people."

## XI.

### TEXAS AND THE ROUTES TO CALIFORNIA.

The coast of Louisiana and Texas is low.

*The Sabine* river is the boundary between Louisiana and Texas.

For a description of typical scenes in southern Louisiana read Longfellow's *Evangeline*, Part Two, Sections II and III.

*Galveston*, one of the largest cities of Texas, is on an island and has a good harbor; it is only a few feet above sea level, and sometimes the waves from the gulf have washed through its streets.

*Dallas* and *Fort Worth* are in the prairie regions and are prosperous cities.

*Austin*, the capital, is on the Colorado.

*San Antonio*, near a river of the same name, is noted for the fight at the Alamo in the war for Texan independence.



*The Rio Grande*, is a long, shallow river of little importance for commerce, and noteworthy chiefly as an international boundary.

*Llano Estacado*, a dry, flat desert region on a plateau in northwestern Texas. The name is the Spanish for "staked plain." In crossing this desert travelers used to drive stakes at intervals to guide them so that they would not lose their way.\* Near the borders of this plain dwell two of the fiercest Indian tribes, the Comanches and the Apaches.

*Santa Fé*, the oldest town in the United States,† has

\*This is the usual explanation of the origin of this name, but Werner's Geography states that the name comes from the fact that the stems of the Yucca plant which abound there stand up like stakes.

†Santa Fé was an Indian town of considerable size when the Spaniards explored this region in 1538. The Spaniards founded St. Augustine; they found Santa Fé.



a population of about 7,000, half of whom are Mexicans; it is the capital of New Mexico.

Notice the prevalence of long, narrow islands parallel to the coast. Turn to the coast line of Maine or Norway and note the striking contrast.

### THREE FAMOUS ROUTES.

After the discovery of gold in California there was a great influx of gold hunters from the then settled portions of the United States, embracing the region east of the Mississippi river. The immigration into California was by three routes: (1) The overland route, or across "the plains." (2) The Panama route, or across the isthmus. (3) The ocean route around Cape Horn or through the strait of Magellan.

With a map of the Western Hemisphere before him let the pupil see these three routes and point out the difficulties of each. The first was the shortest, but it involved a long land journey in wagons over dry plains and rugged mountains and through a land infested with hostile Indians. Sometimes the Mormons in Utah were also hostile. The second presented several obstacles. The trouble, delay and expense of carrying cargoes across the isthmus was considerable, and the danger from the deadly climate of the isthmus was great. By the ocean route the long journey in the slow sailing vessels of that day was terrible.

Owing to the difficulties of the journey many who started never reached their destination, and it came to be a common remark that wagon trains across the plains were able to find their way guided by the unburied skeletons of oxen, horses and men. Most of

those who started from points west of the Alleghanies went over the plains. Those from New Orleans and the Atlantic seaboard went either by the isthmus or by Cape Horn.

The need for a transcontinental railroad was soon felt, but whether the newly acquired Pacific coast would prove worth the great expenditure of a railroad to reach it was for a while in doubt; yet before a decade had passed a road was projected and work upon it begun. The Civil War soon followed, and the building of the road was temporarily suspended; soon after the war, it was resumed and was finished in 1869.

Let the pupils observe on a railroad map of the United States how the railroads shun the mountains, and that where they must cross mountain ranges they go through the passes. Note that in the central basin of the Mississippi the roads cross rivers in all directions, but when they approach the Rocky Mountains they run close to river beds and thus make an easy ascent of the great heights. Observe where the principal transcontinental lines cross the mountains.

The completion of the first transcontinental railway was a matter of great historic and commercial importance. The following graphic description of it may be of interest:

The road had been built by different contractors from the east and from the west to Promontory Point, the very backbone of the continent. The locomotives and trains had met here for the purpose of laying the last tie and for uniting the open link in the rail. West Evans who had furnished the first tie was there with the last one—a beautiful specimen of the California laurel, which was duly put down and then taken up and preserved. A telegraph wire had been carried down to the Golden Gate and attached to a Parrot gun, eight hundred miles away. The governors of four states and territories are there with their gold and silver spikes—the last rail is laid, a telegraph wire is coiled around a silver hammer and the president of the road taps the head of a golden spike. The gentle tap fired the Parrot gun at San Francisco; at this signal the bells of the city rang out the

people's joy upon the free air, the news was carried to every city in the land and the world shouted that the Atlantic was wedded to the Pacific in bonds stronger than those of any metal—a united civilization. This was May 10, 1869.

## XII.

### MEXICO, CENTRAL AMERICA AND THE COLORADO RIVER.

This is a region which yields less readily to the tracing and sketching method of study than almost any other, because of the peculiar relief forms which prevail. The country is a vast plateau about a mile and a half high and studded on its border with many mountain peaks three miles high, some of which are active volcanoes. The plateau becomes higher toward the south, reaching its culmination near the isthmus of Tehuantepec, which is crossed by a chain of thirteen volcanoes. This form of relief accounts for the absence of rivers. We cannot penetrate the country by means of commercial water ways, for there are none.

Although but little map study is called for in teaching the geography of Mexico, yet the description of the country as given in any good school geography is interesting—the more so because so many things are widely different from what the pupil has thus far learned in the study of North America. A few of the things especially noteworthy are:

1. The absence of large cities; Mexico is the only one. Learn about the habits and character of the people. In the city of Mexico there are neither stoves nor



chimneys, and most of the houses are only one story high.

2. The wide difference between the climate of the coast and of the interior, and the causes of this difference.

3. No good harbors on the east. Some good harbors on the west, but no cities. Why?

4. Interesting vegetation: Mahogany trees and cactus plants. The century plant (the agave) blooms when about ten years old, although there is a prevalent superstition in northern countries that it blooms only once in a century. From its juice an intoxicating liquor is made called *pulque*. One species of the agave is the soap plant; its roots are used as soap.

Central America is like Mexico in climate, products and inhabitants. It is interesting to us chiefly on account of the proposed ship canal by way of Lake Nicaragua. Observe on the map the position and size of the lake, that its outlet is to the eastward and that the strip of land between it and the Pacific is very narrow. The following description of the climate of Mexico is taken from William Hawley Smith's *Walks Abroad*:

We got into the City of Mexico about the middle of January, and we left it the first of March, and if we saw a cloud in the sky bigger than Barnum's circus tent during all that time, I have forgotten it. Six weeks of sunshine without a break! And I was told by perfectly reliable parties that it had been just that way ever since the first of October, and that that was the regular thing, every year.

That is to say, from October to March it never rains in Mexico City. The sun shines continually (I mean by *day*, dear literal critic) for more than five months in the year, and umbrellas can go to the pawn shop all that time, so far as rainy weather is concerned.

In early April the rains begin, and they come decently and in order. In the first place, they always come in the afternoon. It never rains in the morning in Mexico City. The showers come at about five o'clock in the afternoon, and they are generally over by



seven. Sometimes they last till into the night, but not often. The mornings are always bright, and a fellow always has a fair chance to get his work done, every day, before the rain begins.

During June, July and August, it rains every day, from five to seven p. m., and no postponement on account of the weather. By October first the rains are over, and they can be absolutely relied upon not to show up again till the following April.

Now, that is what I call a good weather program, so far as the hydraulic part of it is concerned. As to the heat, that is equally satisfactory. The mean temperature for the year is 65 degrees Fahrenheit. The hottest month is May, when the thermometer sometimes reaches 85 degrees. The coldest month is August, when the mercury gets as low as 50 degrees. During our stay, from January to March, the hottest weather we had was 75 degrees, and the coldest 55 degrees.

But I must draw rein, for once on this subject of the climate of Mexico City, I shall write on to the end of the book if I don't put a limit on myself.

And even then I could not tell of *all* its charms. How the farmers have six rainless months in which to gather their crops and no harm to fear for their grain. How they have more than four months to plant it, and yet their crops all come up together and get ripe together; because you see about the first of December the ground gets so dry that grain will not sprout in it, even though it is planted, but will lie there, safe and sound, till the rains come, and then all come up at once and grow evenly, and get ripe evenly.

#### THE COLORADO RIVER.

Note that this is one of the largest rivers of the United States, but one of the least important commercially. State several reasons for its lack of commercial importance. Its chief branches are the Gila, a river of some historic importance, and in its upper course the Green.

The great canyon is the most important feature of the Colorado. Help the pupils to conceive of its great depth by making some comparisons. Probably they have never seen a church spire or other building higher than 150 feet. Let them try to think of two such spires one on top of the other. To stand on a river bank and look straight down a distance of 300 feet at the water running swiftly at the bottom of a narrow, rocky chan-

nel would give an impression of great depth; or to be in a boat on the river and look up to the top of a cliff on either side 300 feet high would be impressive. What shall we say then of a river in a narrow gorge or channel, between rocky almost vertical walls *twenty times* 300 feet high and running in such a chasm for a distance of 200 miles?

### XIII.

#### CALIFORNIA.

*San Diego* is the oldest town in California; it is an important port, has a hotel that cost over a million dollars, and a few miles back is the famous Sweetwater dam, one of the largest in the world, built of solid masonry 90 feet high.

On the *Santa Barbara Islands* many sheep are raised. Sea fowls in great numbers make their nests here, and a considerable commerce is carried on in collecting and selling their eggs.

*Los Angeles* is the center of the orange producing region of California. It is about the size of Des Moines. It is noted for its delightful climate, and its great exports of fruit and wine.

*Golden Gate*, the entrance to San Francisco Bay, is over a mile wide, and five miles long; it is defended by two forts. Its shores are rocky cliffs, in some places 2,000 feet high. Interpret the meaning of these lines from B. F. Taylor:

From Hell Gate to Golden Gate—

A sweep continental, and the Sabbath unbroken.

*San Francisco* is a little larger than Milwaukee; it

is probably the most cosmopolitan city in America. It has a park of over a thousand acres extending along the seashore. San Francisco has a large foreign commerce with Asiatic ports, and its coasting trade extends to Sitka; its harbor is one of the largest and best in the world. Cable cars were first used in this city. Many of the wealthy business men of San Francisco have fine residences in

*Oakland*, on the east side of the bay, a city about the size of Dubuque.

*The San Joaquin River* has this peculiarity: Its tributaries are numerous on the right bank, and they run parallel to one another in narrow valleys, but there are none on the left. Remembering that the rain bearing winds are from the Pacific, and that the Sierras are high and snow-capped, while the coast range is comparatively low, this is easily explained.

*The Merced River*, in one of these narrow valleys, contains the famous Yosemite Falls. Perhaps nowhere else in the world is there so much beauty and grandeur of scenery. The river makes a fall of 2600 feet.

*Tulare Lake* is surrounded by a swamp, which in the rainy season overflows into the San Joaquin River, but there is no well defined channel from the lake to the river.

*Mount Whitney* is the highest peak in California, nearly 15,000 feet high.

*Mohave Desert* is the hottest region in the United States, and one of the hottest in the world. One portion of it lies below the sea level, and is called Death Valley. It is thus described by a recent writer:

The geological formation of Death Valley is paralleled by but one other spot on the globe—the Dead Sea region of the Holy Land. The valley is about eight miles broad and thirty-five in length. It lies far below the level of the Pacific in some places as much as 160 feet, and has the appearance of being under the ban of some terrible curse. Thunder storms pound around its borders, but no cloud ever intercepts the rays of the scorching sun that continually beat down upon Death Valley sands, until they are hotter than those of “burning Sahara.” For week in and week out the thermometer stands above 100 degrees night and day, sometimes rising to 125 in the afternoons. Moisture of all kinds is unknown; dead animals dry up and mummify in the sand.



- |  |                                     |
|--|-------------------------------------|
| 1. San Diego.                                  | 8. Merced River and Yosemite Falls. |
| 2. Santa Barbara Islands.                      | 9. Tulare Lake.                     |
| 3. Los Angeles.                                | 10. Coast Range.                    |
| 4. Golden Gate, City and Bay of San Francisco. | 11. Mount Whitney.                  |
| 5. Oakland.                                    | 12. Sacramento River.               |
| 6. San Joaquin River.                          | 13. Sacramento.                     |
| 7. Stockton.                                   | 14. Sierra Nevada Mountains.        |
|  | 15. Mount Shasta.                   |

*Sacramento* is the capital of California.



*Mount Shasta*, over 14,000 feet high, is one of the famous peaks of the United States, and is nearly as high as Mt. Whitney. It marks the point where the Sierras and the Coast Range diverge.

GENERAL FACTS TO BE NOTED.

Observe the peculiar arrangement of the mountains of California. At Mt. Shasta the two ranges separate and leave a long elliptical valley between them, coming together again a little north of Los Angeles. This valley has the one door, the Golden Gate, and is drained by two rivers of about equal size. This double valley is the most important part of the state. In the northern valley wheat and cattle are raised; the southern valley is the great fruit region.

Although California extends north and south for a distance greater than from Chicago to Charleston, S. C., yet the average temperature between the northern and southern ends of the state differs by only four degrees. In the neighborhood of Monterey ripe strawberries can be picked from vines every month in the year. Tomato vines in California have been known to grow thirty feet high, and to live from year to year.

California produces one-half the gold of the United States, and one-seventh of the world's supply. Quicksilver is also an important product; it is used largely in separating gold from dross. Near San Francisco along the coast are many sea lions and some seals.

The big trees of California are famous. They are of the species called *Sequoia*, a kind of red cedar. No trees except the eucalyptus, of Australia, are larger than these. One grove of them is near the Yosemite,

another in Calaveras County. They grow to a height of over 300 feet; one which is fallen has a girth of 110 feet. Let the pupils try to imagine an old log lying in the woods, so large that to get across it, one must climb up a distance three times as great as the height of the schoolroom.

The following notes are from *Our Great Pacific Commonwealth in the Century* for December 1896:

Among the products of California is almost everything which would appear in an elaborate dinner menu, from the course of olives to the course of oranges, nuts and raisins, excluding only the coffee.

The Sacramento Valley is held in vast estates, principally devoted to the cultivation of grain, which has been a losing industry for several years.

In southern California the water supply has become almost as precious as gold.

California is about as large as France, and its capacity for sustaining as large a population (38,000,000) is fully as great, but its population is now only a million and a quarter.

A colony of millionaires has been established in southern California, to which desirable families are admitted only on condition that they will spend \$250,000 each for improvements.

"California is the rich man's paradise and the poor man's hell."

Californians are just beginning to pickle the ripe olives. The difference between a green olive and a ripe one, is precisely the difference between a green and a ripe apple. In Spain, the people subsist largely on olives, but not on green ones. When the American public become acquainted with the ripe fruit which is now being pickled, its consumption will be enormously increased, for in its new form the olive is nutritious and palatable, and the people will depend on it as an article of diet.

What promises to be one of the largest copper mines in the world has recently been opened in Shasta County with the aid of British capitalists.

Perhaps the earliest triumph of "the new woman" in this generation was that of Miss Austin and her three associates—all school teachers of San Francisco—who founded the wonderful raisin industry. Investing their savings in a ranch, and then boldly venturing upon a culture in which few had faith, they demonstrated that raisins equal to those of Spain could be produced in the San Joaquin. They were rewarded with handsome profits, and later thousands of people shared in the benefits of their demonstration.

## XIV.

## OREGON AND WASHINGTON.

The map given in this lesson is to be used in connection with the reading of *The Story of a Salmon*. For the usual purpose of study, the following places also should be learned and located on a sketch map:

Columbia River.	Cape Flattery.
Portland.	Juan de Fuca Strait.
Willamette River.	Puget Sound.
Salem.	Seattle.
Cascade Mountains.	Tacoma.
Mount Hood.	Mount Tacoma (Rainier.)
Snake River.	Olympia.
Boise.	Vancouver Island.

A study of the rainfall of Oregon and Washington, in connection with the Japan current and the prevailing winds should be undertaken.

Call attention to the numerous Islands in Puget Sound. Two counties of Washington are composed entirely of these islands. Turn to the history and review the northwest boundary disputes which were settled in 1846 and in 1872.

On the Columbia river between the Cascade Mountains and its mouth, are very extensive salmon fisheries and canning establishments, second only to those of Alaska; they employ about 2,000 vessels, and produce an annual output valued at over \$3,000,000.

The word salmon is from the Latin *saltire*, to leap. Trout belong to the salmon family; they also are able to leap from the water and ascend rivers in which are rapids and other obstructions.

The teacher of geography who makes the study consist wholly or even chiefly in learning the location of places, fixing in memory and reproducing map forms and memorizing the fragmentary and juiceless bits of information furnished by the text-book makes a mistake almost as great as that made by some of the extremely "modern" teachers of this branch who go to the other extreme and present little



more than a succession of disconnected stories of remarkable scenes and peculiar occupations and modes of life in remote and unimportant lands.

The one method is deadening because it lacks in human interest, the other is debilitating because it lacks the element of serious work. Pupils taught by the first, learn map symbols without knowing what they mean; those taught by the second have a jumble of "vivid pictures" as unsubstantial and unrelated as the impressions they get from *Alice in Wonderland* or *The Arabian Nights*. A hazy, nebulous mass of facts relating chiefly to the strange and picturesque things in foreign and unfrequented countries, however much entertainment the child may get in the presentation of such matter, is not of much real value, and should not be regarded as geographic knowledge. But the wise teacher will avoid both extremes; he will teach only a reasonable amount of map work, but having decided in his own mind what is reasonable for the particular class in hand will require that the tracing and sketching lessons carefully selected shall be thoroughly learned. Then he will supplement the descriptive text with whatever may be needed to illumine and vivify the lessons. Such supplementary matter will be definitely associated with the map so that in the child's mind the knowledge thus imparted shall have a local habitation.

It is seldom wise to read a long selection or make a long talk, however interesting it may be, without making frequent pauses to question the pupils on the meaning, refer to the map, or have the substance of a paragraph stated in order to insure attention. As an illustration of a very profitable kind of supplementary work in geography we present here an account of the life history of a salmon, by Dr. David Starr Jordan, with notes and suggestions for the teacher. The exercise is suitable for any grade of pupils who may be studying text-book geography, from the fifth grade to the high school.

A study of the map of the Columbia basin should precede, and a review of it may accompany the reading of the story. A sketch map of the region may be placed on the board beforehand or may be made as the reading proceeds. It will add to the interest if a large picture of Mt. Tacoma be drawn on the board in green and white.

At any one of the points indicated by the notes, the reading for the day may stop, and next day the story be continued after the children have been allowed to tell it as far as read.

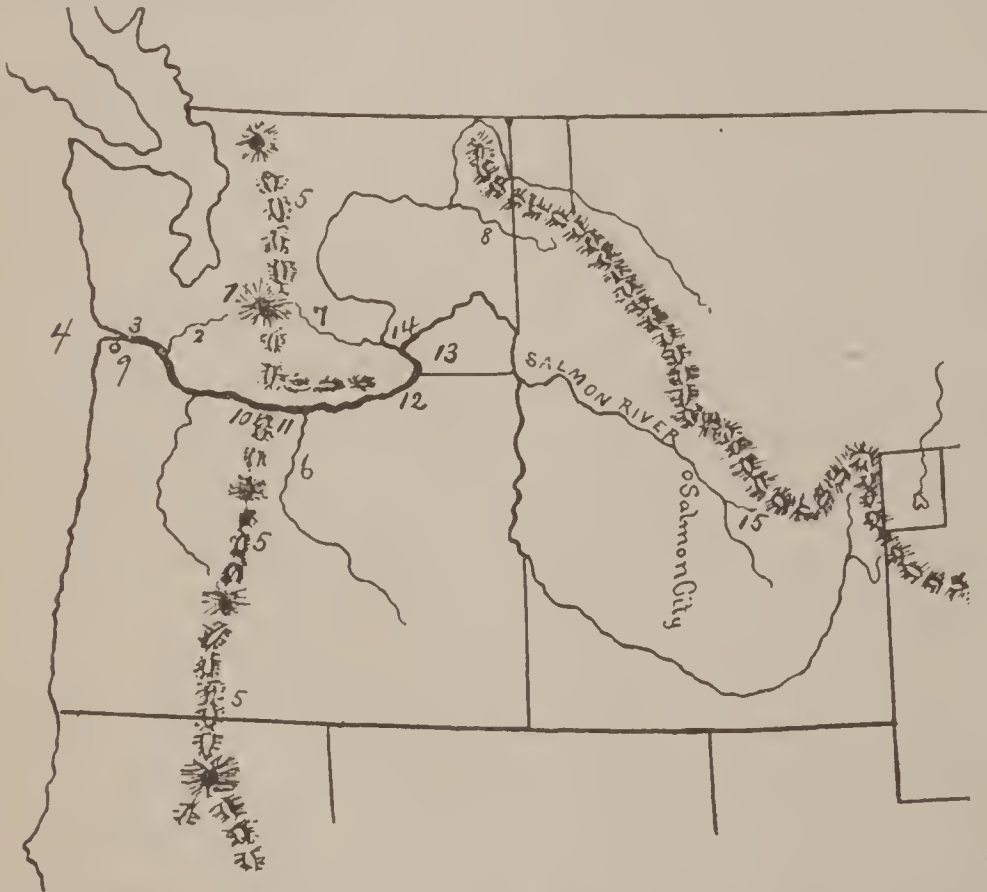
The reference numbers in the text are to the map. Use the map.

#### THE STORY OF A SALMON.

In the realm of the Northwest Wind, on the boundary line between the dark fir forests and the sunny plains, there stands a mountain—a great white cone two miles and a half in perpendicular height. On its lower mile the dense fir woods cover it with never changing green; on



its next half mile a lighter green of grass and bushes gives place in winter to white; and on its uppermost mile the snows of the great ice age still linger in unspotted purity. The people of Washington say their mountain is the great "King-pin of the Universe," which shows that even in its own country Mount Tacoma<sup>1</sup> is not without honor.



How high is Mt. Tacoma? How does the Pacific slope north of Mt. Tacoma differ from that part south of it? How much and what part of the mountain is always white? How far up is the timber line? How wide is the middle belt and how does it change? What is this mountain sometimes called? What is said of its shape?

If the pupils cannot answer all these questions, re-read the paragraph.

Flowing down from the southwest slope of Mount Tacoma is a cold, clear river,<sup>2</sup> fed by the melting snows of the mountain. Madly it hastens down over white cascades and beds of shining sand, through birch woods

and belts of dark firs, to mingle its waters at last with those of the great Columbia.<sup>3</sup> This river is the Cowlitz; and on its bottom, not many years ago, there lay half buried in the sand a number of little orange colored globules, each about as large as a pea. These were not much in themselves, but great in their possibilities. In the waters above them little suckers and chubs and prickly sculpins strained their mouths to draw these globules from the sand, and vicious looking crawfishes picked them up with their blundering hands and examined them with their telescopic eyes. But one, at least, of the globules escaped their curiosity, else this story would not be worth telling. The sun shone down on it through the clear water, and the ripples of the Cowlitz said over it their incantations, and in it at last awoke a living being. It was a fish—a curious little fellow, not half an inch long, with great, staring eyes, which made almost half his length, and with a body so transparent that he could not cast a shadow. He was a little salmon, a very little salmon; but the water was good, and there were flies and worms and little living creatures in abundance for him to eat, and he soon became a larger salmon. Then there were many more little salmon with him, some larger and some smaller, and they all had a merry time. Those who had been born soonest and had grown largest used to chase the others around and bite off their tails, or, still better, take them by the heads and swallow them whole; for, said they, “even young salmon are good eating.” “Heads I win, tails you lose,” was their motto. Thus, what was once two small salmon became united into a single larger one, and the

process of "addition, division, and silence" still went on.

By and by, when all the salmon were too large to be swallowed, they began to grow restless. They saw that the water rushing by seemed to be in a great hurry to get somewhere, and it was somehow suggested that its hurry was caused by something good to eat at the other end of its course. Then they all started down the stream, salmon-fashion—which fashion is to get into the current, head upstream, and thus to drift backward as the river sweeps along.

Down the Cowlitz River the salmon went for a day and a night, finding much to interest them which we need not know. At last they began to grow hungry; and coming near the shore, they saw an angleworm of rare size and beauty floating in an eddy of the stream. Quick as thought one of them opened his mouth, which was well filled with teeth of different sizes, and put it around the angleworm. Quicker still he felt a sharp pain in his gills, followed by a smothering sensation, and in an instant his comrades saw him rise straight into the air. This was nothing new to them; for they often leaped out of the water in their games of hide-and-seek, but only to come down again with a loud splash not far from where they went out. But this one never came back, and the others went on their course wondering.

What kind of a river is the Cowlitz? Where does it rise and how is it fed? Of what size, shape and color are salmon eggs? Describe the appearance of a very young salmon. What does the young salmon eat? How do salmon go down stream? What became of one of these little fishes?

At last they came to where the Cowlitz and the Co-



lumbia join, and they were almost lost for a time; for they could find no shores, and the bottom and the top of the water were so far apart. Here they saw other and far larger salmon in the deepest part of the current, turning neither to the right nor to the left, but swimming right on up stream just as rapidly as they could. And these great salmon would not stop for them, and would not lie and float with the current. They had no time to talk, even in the simple sign language by which fishes express their ideas, and no time to eat. They had important work before them, and the time was short. So they went up the river, keeping their great purposes to themselves; and our little salmon and his friends from the Cowlitz drifted down the stream.

Before reading the last few words of this sentence let the children say what the little salmon will probably do. Will they follow the large ones? Would the large ones eat them? No; for "they had no time to eat."

By and by the water began to change. It grew denser, and no longer flowed rapidly along; and twice a day it used to turn about and flow the other way. Then the shores disappeared,<sup>4</sup> and the water began to have a different and peculiar flavor,—a flavor which seemed to the salmon much richer and more inspiring than the glacier water of their native Cowlitz. There are many curious things to see—crabs with hard shells and savage faces, but so good when crushed and swallowed! Then there were luscious squid swimming about; and, to a salmon, squid are like ripe peaches and cream. There were great companies of delicate sardines and herring, green and silvery, and it was such fun to chase and capture them! Those who eat sardines packed in



oil by greasy fingers, and herrings dried in the smoke, can have little idea how satisfying it is to have a meal of them, plump and sleek and silvery, fresh from the sea.

Thus the salmon chased the herrings about, and had a merry time. Then they were chased about in turn by great sea lions—swimming monsters with huge half-human faces, long, thin whiskers, and blundering ways. The sea lions liked to bite out the throat of a salmon, with its precious stomach full of lucious sardines, and then to leave the rest of the fish to shift for itself. And the seals and the herrings scattered the salmon about, till at last the hero of our story found himself quite alone, with none of his own kind near him. But that did not trouble him much, and he went on his own way, getting his dinner when he was hungry, which was all the time, and then eating a little between meals for his stomach's sake.

So it went on for three long years; and at the end of this time our little fish had grown to be a great, fine salmon of twenty-two pounds' weight, shining like a new tin pan, and with rows of the loveliest round black spots on his head and back and tail. One day, as he was swimming about, idly chasing a big sculpin with a head so thorny that he was never swallowed by anybody, all of a sudden the salmon noticed a change in the water around him.

Spring had come again, and the south-lying snow drifts on the Cascade Mountains<sup>5</sup> once more felt that the "earth was wheeling sunwards." The cold snow waters ran down from the mountains and into the Columbia River, and made a freshet in the river. The

high water went far out into the sea and our salmon felt it on his gills. He remembered how the cold water used to feel in the Cowlitz when he was a little fish. In a blundering, fishy fashion he thought about it; he wondered whether the little eddy looked as it used to look, and whether caddis worms and young mosquitoes were really as sweet and tender as he used to think they were. Then he thought some other things; but as the salmon's mind is located in the optic lobes of his brain, and ours is in a different place, we cannot be quite certain what his thoughts really were.

What change did they notice in the water? What made the water flow up the river? How often did this occur? Describe the salmon's life in the ocean. How does the sea lion eat salmon? How long did the salmon stay in the ocean? How did he then look? What is meant by the "earth was wheeling sunwards?" What caused the next change in the water?

What our salmon did, we know. He did what every grown salmon in the ocean does when he feels the glacier water once more upon his gills. He became a changed being. He spurned the blandishments of soft-shelled crabs. The pleasures of the table and of the chase, heretofore his only delights, lost their charms for him. He turned his course straight toward the direction whence the cold water came, and for the rest of his life never tasted a mouthful of food. He moved on towards the river mouth, at first playfully, as though he were not really certain whether he meant anything after all. Afterward, when he struck the full current of the Columbia, he plunged straight forward with an unflinching determination that had in it something of the heroic. When he had passed the rough water at the bar, he was not alone. His old neighbors

of the Cowlitz, and many more from the Des Chutes,<sup>6</sup> the Yakima<sup>7</sup> and the Spokane,<sup>8</sup>—a great army of salmon—were with him. In front were thousands pressing on, and behind them were thousands more, all moving by a common impulse which urged them up the Columbia.

They were all swimming bravely along where the current was deepest, when suddenly the foremost felt something tickling like a cobweb about their noses and under their chins. They changed their course a little to brush it off, and it touched their fins as well. Then they tried to slip down with the current, and thus leave it behind. But, no! the thing, whatever it was, although its touch was soft, refused to let go, and held them like a fetter. The more they struggled, the tighter became its grasp, and the whole foremost rank of the salmon fell in together; for it was a great gill net, a quarter of a mile long, stretched squarely across the mouth of the river.

By and by men came in boats and hauled up the gill net and the helpless salmon that had become entangled in it. They threw the fish into a pile in the bottom of the boat, and the others saw them no more.

All this time our salmon is going up the river, eluding one net as by a miracle, and soon having need of more miracles to escape the rest; passing by Astoria<sup>9</sup> on a fortunate day, he came to where the nets were few, and, at last, to where they ceased altogether. But there he found that scarcely any of his companions were with him; for the nets cease when there are no more salmon to be caught in them. So he went on, day



and night, where the water was the deepest, stopping not to feed or loiter on the way, till at last he came to a wild gorge, where the great river became an angry torrent, rushing wildly over a huge staircase of rock. But our hero did not falter; and summoning all his forces, he plunged into the Cascades.<sup>10</sup> The current caught him and dashed him against the rocks. A whole row of silvery scales came off and glistened in the water like sparks of fire, and a place on his side became black and red, which, for a salmon, is the same as being black and blue for other people. His comrades tried to go up with him, and one lost his eye, one his tail, and one had his lower jaw pushed back into his head like the joint of a telescope. Again he tried to surmount the Cascades; and at last he succeeded, and an Indian on the rocks above was waiting to receive him. But the Indian with his spear was less skilful than he was wont to be, and our hero escaped, losing only a part of one of his fins; and with him came one other, and henceforth these two pursued their journey together.

What is meant by "the rough water at the bar?" Where is Astoria and for what is it noted? Point out on the map the cause of the very swift current at the Cascades. How many and what ways of catching fish have been mentioned in the story?

Now a gradual change took place in the looks of our salmon. In the sea he was plump and round and silvery, with delicate teeth in a symmetrical mouth. Now his silvery color disappeared, his skin grew slimy, and the scales sank into it; his back grew black and his sides turned red, not a healthy red, but a sort of hectic flush. He grew poor, and his back, formerly as straight



as need be, now developed an unpleasant hump at the shoulders. His eyes—like those of all enthusiasts who forsake eating and sleeping for some loftier aim—became dark and sunken. His symmetrical jaws grew longer and longer, and meeting each other, as the nose of an old man meets his chin, each had to turn aside to let the other pass. His beautiful teeth grew longer and longer, and projected from his mouth, giving him a savage and wolfish appearance, quite at variance with his real disposition. For all the desires and ambitions of his nature had become centered into one. We may not know what this one was, but we know that it was a strong one; for it had led him on and on—past the nets and horrors of Astoria; past the dangerous Cascades; past the spears of Indians; through the terrible flumes of the Dalles<sup>11</sup> where the mighty river is compressed between huge rocks into a channel narrower than a village street; on past the meadows of Umatilla<sup>12</sup> and the wheat fields of Walla Walla,<sup>13</sup> on to where the great Snake River<sup>14</sup> and the Columbia join; on up the Snake River and its eastern branch, till at last he reaches the foot of the Bitter Root Mountains<sup>15</sup> in the State of Idaho, nearly a thousand miles from the ocean which he had left in April. With him still was the other salmon which had come with him through the Cascades, handsomer and smaller than he, and, like him, growing poor and ragged and tired.

At last, one October afternoon, our finny travelers came together to a little clear brook, with a bottom of fine gravel, over which the water was but a few inches deep. Our fish painfully worked his way to it; for his

tail was all frayed out, his muscles were sore, and his skin covered with unsightly blotches. But his sunken eye saw a ripple in the stream, and under it a bed of little pebbles and sand. So there in the sand he scooped out with his tail a smooth round place, and his companion came and filled it with orange colored eggs; the work of their lives was done, and, in the old salmon fashion, they drifted tail foremost down the stream.

Next morning, a settler in the Bitter Root region, passing by the brook near his house, noticed that a "dog salmon" had run in there, and seemed "mighty nigh tuckered out." So he took a hoe, and wading into the brook rapped the fish on the head with it, and carrying it ashore threw it to the hogs. But the hogs had a surfeit of salmon meat, so they ate only the soft parts, leaving the head untouched. A wandering naturalist found it there and sent it to the United States Fish Commission to be identified. Thus it came to me.

How wide is the Columbia near Astoria? How wide is it at the Dalles? What changes took place in the salmon's appearance as he went up the river? How long did it take the fish to make this journey? How many miles did they go up the stream? What did they eat during this time? Find on the map the name of the eastern branch of the Snake River. How did the salmon look when the journey was done, and what occurred after that?

## XV.

### THE NORTHERN PART OF NORTH AMERICA

Find on the map all the places noted in the list in page 127 and draw a sketch to correspond.

*Vancouver Island* is a mountainous tract, heavily wooded. The terminus of the Canadian Pacific Railway is on the island.

*Sitka* is the largest town of Alaska and has about

1,500 inhabitants. It has a good harbor, and the climate is not severe, being modified by the warm winds from the Pacific. One of the large capitals of Europe (St. Petersburg) is farther north than Sitka.

The three great mountains, Logan and St. Elias in Canada, and Wrangel in Alaska, occupy the highest part of North America. Mt. Logan is the highest of the three and is the seventh in the world, (19,500 feet). Wrangel is the second of the group.

- |                       |                         |
|-----------------------|-------------------------|
| 1. Vancouver Island.  | 15. Mackenzie River.    |
| 2. Sitka.             | 16. Great Bear Lake.    |
| 3. Mount St. Elias.   | 17. Great Slave Lake.   |
| 4. Mount Logan.       | 18. Arctic Archipelago. |
| 5. Mount Wrangel.     | 19. Magnetic Pole.      |
| 6. Alaska Peninsula.  | 20. Hudson Bay.         |
| 7. Aleutian Islands.  | 21. Nelson River.       |
| 8. Island of Attu.    | 22. Lake Winnipeg.      |
| 9. Bering Sea.        | 23. Winnipeg.           |
| 10. Pribilof Islands. | 24. Red River of North. |
| 11. Yukon River.      | 25. Lake of the Woods.  |
| 12. Klondike River.   | 26. James Bay.          |
| 13. Bering Strait.    | 27. Hudson Strait.      |
| 14. Point Barrow.     | 28. Labrador.           |

*The Aleutian Islands* form a sort of "broken bridge" between Alaska Peninsula and Kamchatka, and many believe that these islands furnish the original road by which America was peopled from Asia. The word Aleutian means high and rocky, and describes the character of the islands. Notice the regular curve in which they are arranged.

*The Island of Attu* is the most western possession of the United States, and is a little farther west of San Francisco than San Francisco is of Maine. For a few days in summer the sun rises at Eastport, Me., before it sets on this island.

*The Pribylof Islands* in Bering Sea are especially important as breeding places of the seal.

*The Yukon* is one of the great rivers of the world. It is about 2,000 miles long, and it discharges so much water that for ten miles out beyond its mouth the sea is noticeably fresh. And yet the Yukon is one of the least important of rivers. One little river in North America only about 20 miles long is more than a million times as valuable to man as the Yukon.

*The Klondike*, a tributary of the Yukon, is in a famous gold producing region which lies in Canada, just east of the boundary of Alaska. It is reached by the Yukon, which is open for three months in the year, through Chilcat Pass, north of Sitka and by the overland route via Winnipeg and the Mackenzie. The development of this gold field may increase the importance of the Yukon River.

*Point Barrow* is the northern extremity of the mainland of North America. A little Eskimo village of about 150 people is here, also a mission school. It is in about the same latitude as Hammerfest, the most northern town of Europe, and has continual night from the middle of November to the 23d of January and a corresponding period in summer during which the sun does not set.

*Mackenzie River* and the great lake region which it drains are interesting chiefly as marking the northern slope of the great central plain of which the Mississippi basin is the southern slope. The river never can become of any great commercial importance.

The map of the great archipelago in the northern



part of British America is not accurate in detail, for the reason that very little is known about that region, and whether certain areas are land or water, islands or peninsulas, cannot be positively known, for during most of the year snow and ice cover the land and also the narrower bodies of water.

The earth has four magnetic poles, two northern and two southern. These should not be confounded with the poles of rotation. Note that this one is almost due north of Omaha.

Compare Hudson Bay with the Gulf of Mexico as to size, area drained, temperature and commercial importance.

*Nelson River* is the most important tributary of Hudson Bay and flows out of *Lake Winnipeg*, on which is the city of Winnipeg, the capital of Manitoba.

*Winnipeg* is a well built city of about 30,000, and was founded in 1870. It is the metropolis of the Canadian Northwest and is the center of a rich agricultural region. Although its water outlet, Nelson River, is open for navigation part of the year, most of the business of this city is done by railroads, of which it is an important center.

*Red River of the North* is the boundary between North Dakota and Minnesota; its valley is a famous wheat region.

*Lake of the Woods* and *Rainy Lake* are important chiefly as boundary waters; they are in a region which for the most part is an uninhabited wilderness.

*Hudson Bay* and *Strait and Hudson River*, were

discovered by Henry Hudson. He was set adrift in the bay by his mutinous sailors, and perished.

*Labrador* is said to be the most desolate and uninviting portion of the earth's surface—the most useless as a home for men. Considerable fishing is done on the coast, but the interior is a cold, wind-swept waste of hills and rocks in winter, interspersed with flat portions which are swamps in summer. In some places the surface is covered two and even three layers deep with huge round stones or bowlders; in summer the mosquitoes make it almost impossible for men to remain in the region.

## XVI.

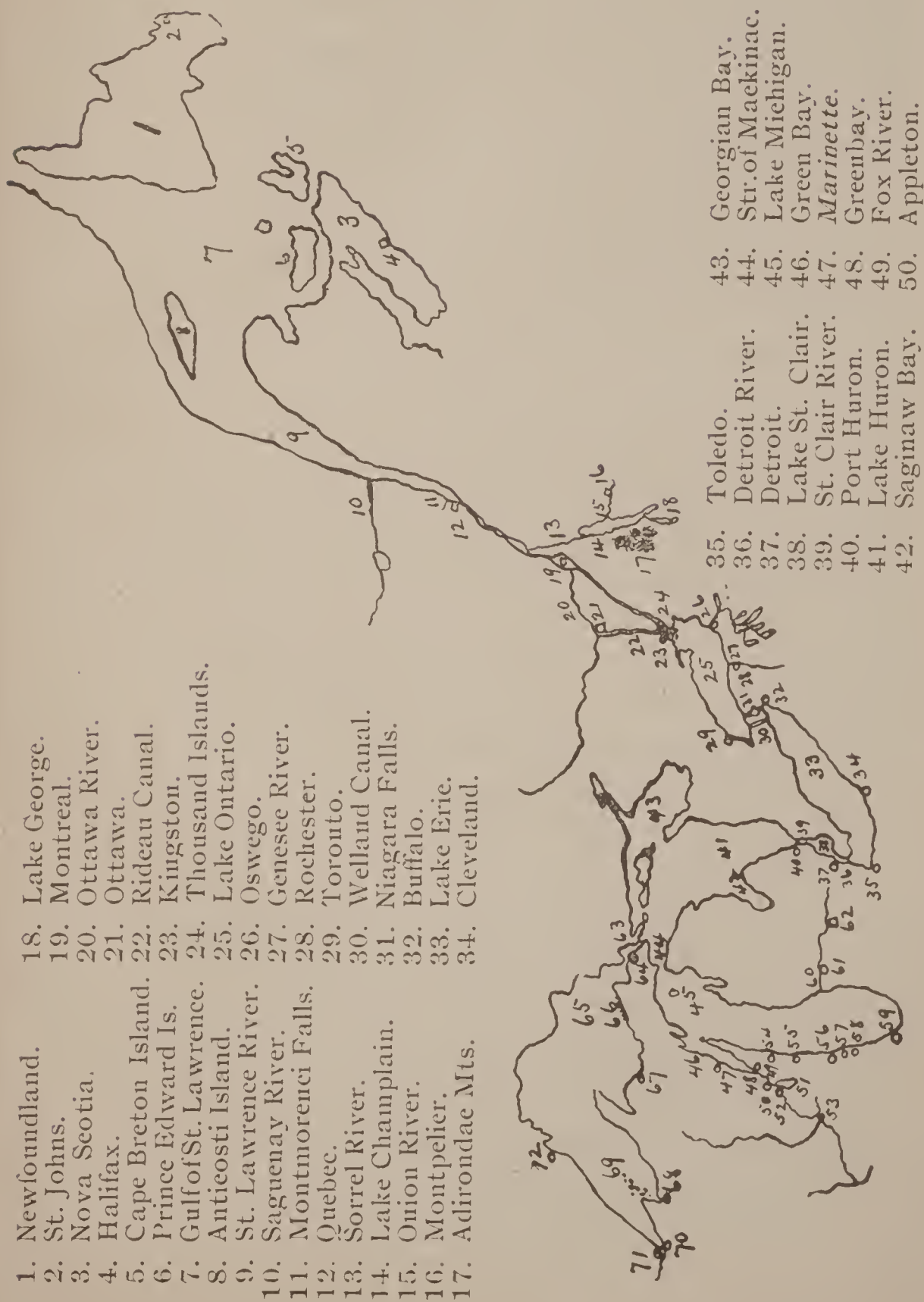
### THE ST. LAWRENCE BASIN.

*Newfoundland* is not a part of Canada, but has a separate colonial government. The island is moderately fertile. A third of its surface is covered with fresh-water lakes. The coast abounds in fish. East of the island are the famous banks of Newfoundland which are shoals or submerged islands. The gulf stream and the cold currents from the Arctic Ocean meet here and produce dense fogs. Icebergs are numerous to the east of these banks.

*Nova Scotia*, the capital of Halifax, is a province of Canada which includes the peninsula and Cape Breton Island. On the west coast of Nova Scotia is the Bay of Fundy; it has the highest tides in the world, 70 feet.

*Prince Edward Island* is the smallest province of the Dominion of Canada. The substitution of iron for wood in the building of ships killed what was once a

leading industry on this island. Fishing and farming are now the chief occupations.



- |                       |                             |
|-----------------------|-----------------------------|
| 51. Lake Winnebago.   | 62. Lansing.                |
| 52. Oshkosh.          | 63. St. Mary's River.       |
| 53. Portage.          | 64. Sault Ste. Marie.       |
| 54. <i>Manitowoc.</i> | 65. Lake Superior.          |
| 55. <i>Sheboygan.</i> | 66. Pictured Rocks.         |
| 56. Milwaukee.        | 67. Marquette.              |
| 57. <i>Racine.</i>    | 68. <i>Ashland.</i>         |
| 58. <i>Kenosha.</i>   | 69. <i>Apostle Islands.</i> |
| 59. Chicago.          | 70. <i>Superior.</i>        |
| 60. Grand River.      | 71. Duluth.                 |
| 61. Grand Rapids.     | 72. Port Arthur.            |

Names printed in italics are for pupils in Wisconsin schools only.

*Saguenay River* is noted for its rugged scenery; in some places it flows between cliffs of rock 1,500 feet high. It is sometimes called the river of death, and is 1,000 feet deep near its mouth.

*The Montmorenci River* pours its water into the St. Lawrence, a few miles below Quebec, making falls considerably higher than Niagara, and about 50 feet wide.

*Quebec* is an interesting little city of about 50,000, situated at the head of ocean navigation on the St. Lawrence. It is one of the most strongly fortified places in North America. Read about Wolfe and Montcalm.

*Lakes Champlain* and *George* are noted as summer resorts, and for the costly residences built near their shores and on their islands by millionaires of eastern cities.

The two mouths of the Ottawa River entering the St. Lawrence form the island on which is *Montreal*, the metropolis of British America, a city of considerable commercial importance, and one of the oldest in Canada. It has about a quarter of a million inhabitants.

*The Ottawa River* is the most important in the world for the lumber business; on it is

*Ottawa*, the seat of the Dominion Government, which



corresponds to our Federal Government at Washington. From this point the

*Rideau Canal* leads to Lake Ontario at Kingston. This route avoids the rapids of the St. Lawrence. Another way of getting around the rapids is to go through the La Chine canal. Boats go down the rapids but cannot go up.

*The Thousand Islands* occupy the upper part of the St. Lawrence and the narrow part of Lake Ontario where the river begins. There are many more than 1,000 of them; they vary in size from several miles in length down to the size of a man's hand, or smaller, for some are sunken rocks when the water is high; most of them are several acres in extent and are wooded. The river is here from four to twenty miles wide. On the Canadian side most of the islands present the beautiful scenery of nature. On the American side the millionaires have built magnificent palaces on the islands, which they use for summer homes. One of the finest of these belongs to George Pullman, the car manufacturer.

*Oswego* is a little city at the mouth of the Oswego River; it has great starch works; note the remarkable group of little lakes which flow into the Oswego River.

*Rochester*, on the Genesee River, is famous for flour mills, and has immense water power. It is half as large as Milwaukee.

*Toronto*, almost as large as Montreal, is the capital of Ontario.

*The Welland Canal* enables vessels to pass around *Niagara Falls*, the most famous waterfall in the world; they are about 165 feet high and nearly a mile

wide. On the crest of the fall the water is from 4 to 20 feet deep. Every minute 15,000,000 cubic feet of water passes over the falls. Let the pupils find by computation how many times the size of the school house or some other well known large object this volume of water would equal. For the first seven miles below the falls there is a descent of 110 feet, causing wonderful rapids hardly less grand than the falls.

## XVII.

### THE ST. LAWRENCE BASIN ABOVE NIAGARA.

*Buffalo*, at the west end of the Erie Canal, has one of the best ports on the Great Lakes. Hard coal from Pennsylvania is shipped from Buffalo by lake to all the upper lake ports.

*Lake Erie* is the smallest and shallowest of the Great Lakes. It has no good harbors on the north shore. Its average depth is only about 120 feet, while that of the three great lakes above it is over 900 feet. Although it is the furthest south of all the Great Lakes, it freezes over while the others remain open. [A spoonful of water freezes quicker than a bucketful.] Ice on Lake Erie is sometimes thick enough for teams to cross. Since Niagara River has a fall greater than the depth of Lake Erie it is evident that this lake will sometime be entirely drained or reduced to a river extending from Detroit to Buffalo. This will make an inland city of

*Cleveland*, the largest city on the Great Lakes except Chicago. Cleveland is a great manufacturing

center. It has one street, Euclid Avenue, which is probably the finest residence street in America.

*Toledo* is an important trade center. Pipe lines convey natural gas to the city. The islands in the vicinity are noted for their excellent vineyards.

*Detroit*, the largest city of Michigan, and one of the oldest in the United States, is about the size of Milwaukee. A car ferry transports trains across the river. It is not practicable to bridge the river, for the land on both sides is low, and the number of vessels passing is so great that a draw bridge would have to be open nearly all the time to accommodate the lake traffic. This river and the St. Clair constitute the most important stream in the world commercially, measured either by the number of vessels or the tonnage.

At *Port Huron* is a railroad tunnel about two miles long extending under the St. Clair River; it is one of the great tunnels of the world. An average of 600 freight cars per day pass through this tunnel.

*Lake Huron* is the second in size of the Great Lakes. Together with Georgian Bay it has about 3,000 islands.

*Saginaw Bay* is the largest inlet in Michigan, and has several good harbors.

In *Mackinac Strait* is the island of Mackinac, a famous summer resort. Fort Mackinac on this island, now abandoned, was once an important military post and commanded the entrance to

*Lake Michigan*, the third in size of the Great Lakes, and the only one of them wholly in the United States.

*Green Bay* and *Fox River*, together with the lower part of the Wisconsin river, were formerly thought to

be the best water route from the Great Lakes to the Mississippi, and the Federal government spent many thousands of dollars in the vain attempt to improve this route and make it navigable, but the shifting sands in the bed of the Wisconsin and the growth of the large cities of St. Louis and Chicago finally led to the abandonment of the scheme; this route is no longer used for navigation.

*Green Bay* is an old city and was the center of a flourishing French settlement in early days.

*Appleton* is noted for its paper mills.

*Oshkosh* for manufactures of lumber and matches.

*Portage*, as its name implies, is the place where the early voyagers carried their boats across and thus passed from the St. Lawrence to the Mississippi basin.

*Milwaukee*, called the Cream City, because built chiefly of cream colored brick, is a city of over a quarter of a million inhabitants. It is built on a semi-circular bay seven miles across, and has an excellent harbor with twenty miles of docks. Nearly half the population is German. It is noted chiefly for the manufacture of beer; it has also a large iron business and extensive tanneries, and is one of the leading grain ports of the world.

*Chicago*, the second city of the United States, has a population of about one and a half million, and in area is the largest city in the world. An immense canal, almost complete, will soon join the waters of Lake Michigan with the Illinois River and drain the sewage of Chicago into that river. Many of the buildings in Chicago are from ten to twenty stories high, and in



this point it surpasses all other cities of America. Its grain and live stock trade is the greatest in the world, and it is the greatest railroad center in the world; thirty-five lines of railroad enter the city, and they have a combined mileage which is one-third that of the whole United States. There are over 400 miles of street car track in the city. The Sheridan drive running north to Fort Sheridan is the finest on this continent; the legislatures of Illinois and Wisconsin have taken steps to extend it to Milwaukee along the lake shore.

The University of Chicago is one of the greatest institutions of learning in the United States, and has an endowment of over \$7,000,000.

The towns on the east shore of Lake Michigan are much less important than those on the west shore; this is not wholly owing to the absence of good harbors.

*Grand Rapids*, on Grand River, is the second city in Michigan, and is noted for its furniture and woodenware factories.

*Lansing* is the capital of Michigan.

*Sault Ste. Marie* (St. Mary's Falls) is noted for the great canal and locks through which pass every year three times as many vessels as through the Suez Canal. The level of Lake Superior is  $20\frac{1}{2}$  feet higher than that of Lakes Michigan and Huron, hence the need for locks.

*Lake Superior*, as its name indicates, is higher than the others. It is the largest body of fresh water in the world. Its water is very cold, both in summer and in winter. It is over four hundred miles long.

*The Pictured Rocks* are sandstone cliffs about one hundred miles west of Sault Ste. Marie, marked in broad bands and blotches of yellow and red in irregular shapes.

*Marquette* and *Ashland* ship great quantities of iron ore.

*Superior* and *Duluth*, at the head of the great lake, have a population of about 60,000, and are important shipping points for wheat from the great fields of Minnesota and the Dakotas; all the coal used in the interior to the westward, is shipped to these cities by lake from Buffalo.

*Port Arthur* is the only Canadian port of entry on Lake Superior.

#### SOME PECULIAR FACTS ABOUT THE ST. LAWRENCE.

Observe the great width of the St. Lawrence River. It has what is called an estuary mouth, and in this respect is in striking contrast to the Mississippi which has a delta mouth. Sand bars do not form at the mouth of the St. Lawrence; the "Banks" east of Newfoundland are not formed from the silt of this river as might be supposed, but are probably in large measure the result of the deposits from the Arctic current and the Gulf Stream.

One reason why there is so little silt in the St. Lawrence will be easily understood by a glance at a map of its basin, which includes the Great Lakes. The bottoms of these lakes form great catch-basins in which settles the silt brought down by the rivers that flow directly into them, the current in the lakes themselves being imperceptible except near the outlets. Hence only

from Kingston to the mouth does the river receive silt from its basin; and in this part of its course the stream is very rapid, having a bed in hard, smooth rock.

This basin is in some respects the most wonderful and interesting of all the river basins in the world, and probably contains about half the fresh water of the world. The St. Lawrence is the only river in which there are no floods.

The water surface of this basin is almost as large as the land surface. In some places, notably along the south shores of Lakes Erie and Superior and the west shore of Lake Michigan the watershed is very close to the lakes, in some places within from six to fifty miles of the shore. Bear in mind that most of the snow which falls in these lakes is melted at once. On account of the facts above noted, the variation in the height of the St. Lawrence river produced by rain or melting snow is only about a foot; sometimes its flow is affected more than this by wind and ice.

Draw a line around the St. Lawrence basin and see how it compares in shape and size with the Mississippi basin. Which has the greater depth of rainfall? Which the greater total aggregate of rainfall? If an inch of rain should fall on Lake Michigan and the same amount on an equal area of Illinois, in which case would the greater amount of water be discharged into the ocean? It is estimated that the St. Lawrence discharges more water than the Mississippi.

## GENERAL LESSONS.

## I.

## STRUCTURE AND SIZE OF CONTINENTS.

We have now completed the journey around North America, and by following the coast, and ascending the rivers and their tributaries, have reached all the towns of importance with one exception. In making the circuit of Europe we found one region, the Caspian basin, inaccessible by water routes from the ocean. In North America the interior basin is west of the Rocky Mountains, and contains one city, Salt Lake City, population about 50,000, and noted chiefly because it was founded and for a long time controlled by the Mormons. It is in a rainless region, consequently farm land must be irrigated.

There are several good reasons why more time should be spent in school on the geography of Europe and North America than upon any or all of the other continents. *First.* Europe and North America embrace the great bulk of that part of the human race whose life and occupations and the impress which they have made and are making on the world constitute what is called modern civilization. *Second.* Comparatively little is known about the other continents, especially of the interior regions. *Third.* Europe and North America are so closely related commercially and historically that an intelligent inhabitant of one of these continents must know a good deal about the other.

In the lessons thus far, Europe and North America have been treated according to the Tracing and Sketching method. An effort has been made to reduce the number of facts to be taught to a reasonable minimum, and to present those facts in an orderly, systematic manner, with certain helps and suggestions by which to add interest to the work without losing sight of the fact that a certain body of definite knowledge, of particular facts, must be mastered. In studying the four remaining land masses, not so much minuteness of detail is necessary; the aim will be to summarize a few leading facts concerning these continents.

What is presented is not intended as a substitute for what is found in text-books, but rather as supplementary to the book or as a suggestion to the teacher who is at a loss to know which of the many things presented in the text-book should be chiefly emphasized.



## HOW MANY CONTINENTS ARE THERE?

The usual answers to this question are two, three, five, six; and all these answers are correct. It is interesting to note what the various notions of a continent are, which lead to such a variety of answers.

“A continent is a very large land mass.” This definition, with considerable emphasis on the word *large*, gives us two continents, the Eastern and the Western, and leaves Australia to be classed with the islands. But, remembering that *large* is only a relative term, we may use the same definition so as to include Australia, and thus have three continents.

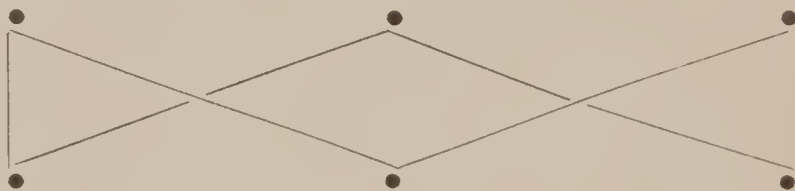
“A continent is a large basin-like land mass, having mountains near the outer edges.” This definition makes a continent differ from an island, not only in size, but also in structure; it recognizes as distinct structural units the two Americas and Africa, although each is attached to another land mass by a slender neck. Under this definition we get five continents, Eurasia, Africa, North America, South America, Australia.

Although the separation of Europe as a land mass from Asia is not very clearly marked, yet some eminent geographers, among them Guyot, prefer to regard them as two, because of the striking differences in their structure. Probably the fact that a difference of name leads the mind to assume a difference in the things named, also the historic antagonism between the people of Europe and Asia may have biased the geographers. Yet those who enumerate six continents are in respectable company.

Here is an interesting point worth noting: Each

continent has an interior basin, that is, a region which is not drained into the ocean. In going around North America by the Tracing and Sketching method, ascending all the rivers, there was one considerable area which we did not reach—the great Salt Lake Basin. We shall find a similar area of greater or less extent in each continent.

Here is a convenient way to remember the continents in the order of their size. Make three dots, one for each of the northern continents—North America, Europe and Asia, and three for the southern continents—South America, Africa and Australia. Connect the dots by lines making a symmetrical figure, thus:



Begin at either right-hand point and follow the line.

## II.

### SOUTH AMERICA.

This may be called “The Continent of Threes.”

1. It is three-cornered. Name and locate the corners.
2. It is bounded by three bodies of water. Name them.
3. There are three mountain systems. What and where are they?
4. Three great rivers. Name them and state in what direction they flow.
5. Three great plains, Llanos, Selvas and Pampas.

The most striking feature of the structure of South America is the one-sided arrangement of its mountains. The continuous, unbroken wall of the Andes arrests attention at once on looking at the map; situated as it is on the extreme western edge, this mountain wall profoundly affects the climate and rainfall. Note the

deserts of Atacama. Take any school text on physical geography, and study the winds of this region until you can clearly account for the great rainfall east of the Andes, and for the desert in northern Chili.



The characteristics of the three great plains are worthy of note. The Llanos (Orinoco basin) are the levellest part of the world, being almost as level for hundreds of miles as the surface of still water. In the dry season this plain is a desert. When the rains come,

vegetation grows rapidly; alligators and turtles, which had burrowed beneath the ground during the summer, now crawl out; wild cattle return from the adjoining hilly country, whither they had emigrated when the streams and the grass dried up, and they now find abundant pasturage on these great plains.

The Selvas (Amazon basin) are more densely wooded than any other part of the earth of equal extent, and abound in birds of brilliant plumage and in reptiles. The large trees are interlaced with vines, and the underbrush is so dense as to make the forests almost impenetrable.

The Pampas (La Plata basin) somewhat resemble the prairies of North America, and are regarded by some explorers as the most fertile part of the world; although they have not yet been utilized for farming so much as for grazing, yet Argentina is now one of the great wheat producing countries, and exports about half as much wheat as the United States.

Although the Brazilian Andes and the Highlands of Guiana are small in comparison to the Andes, yet they rank about equally important with the Alleghanies of North America.

Lake Titicaca is noted for its great elevation. Its surface is nearly twice as high as the highest peak of the Alleghanies. It is about one-half larger than Great Salt Lake, and its depth is unknown. The water of this lake is fresh or only slightly brackish, although it has no visible outlet to the ocean. The interior basin in which Lake Titicaca is situated is much smaller and higher than the corresponding region in North America.



In South America there are ten republics and three colonies; two of the republics have no seacoast.

Of South American cities, two are larger than St. Louis, four are larger than Milwaukee, and ten are larger than Denver. Venezuela would make ten states, and Argentina twenty as large as Wisconsin or Iowa.

Find a South American island whose shores are not washed by salt water, and which is about as large as Massachusetts.

#### TEN LARGEST CITIES OF SOUTH AMERICA.

- |                  |                          |
|------------------|--------------------------|
| 1. Buenos Ayres, | } Larger than St. Louis. |
| 2. Rio Janeiro,  |                          |
| 3. Santiago,     | } Larger than Milwaukee. |
| 4. Bahia,        |                          |
| 5. Montevideo,   | } Larger than Denver.    |
| 6. Pernambuco,   |                          |
| 7. Valparaiso,   |                          |
| 8. Rosario,      |                          |
| 9. Bogota,       |                          |
| 10. Lima.        |                          |

It is not worth while to burden the memory with numbers expressing population of cities. We do not know much about the size of distant cities, and have no reliable sources of information within convenient reach. In this we are no worse off than the authors who write our text-books. To illustrate: The population of some South American cities as given in two recently published geographies is as follows:

	The Werner Geography.	Frye's Geography.
Buenos Ayres* .....	612,226	580,000
Rio Janeiro .....	522,651	800,000
Lima .....	103,956	162,000

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\*The Natural Elementary Geography gives the population of Buenos Ayres as 664,000. The dates of publication of these books are Frye's, 1895, The Werner, 1896, The Natural, 1897. Assuming that they are all correct, Buenos Ayres is growing very fast.

## III.

## ASIA.

Asia contains about half the inhabitants and a third of the land surface of the world. It is difficult to represent on a flat surface so large an area so as to convey correct ideas of direction. On a flat map of Asia there is special need to notice the lines of latitude and longitude in determining directions, for it is not strictly true that "up is north, down is south, to the right is east and to the left is west."

The *Obi*, the *Yenisei* and the *Lena* drain the great Siberian plain. Since their mouths are far to the north of their sources there are great swamps in their lower courses. The sources are affected by the approach of spring while the mouths are still choked up with ice; this causes the water in the lower courses of these rivers to spread out over the plains.

*Lake Baikal* is one of the deepest lakes in the world, being over 4,000 feet deep in some parts. It is the largest lake in Asia and is longer than Lake Superior. It has two commercial ports and considerable trade is conducted over it by steamboats. A car ferry is soon to be established across it.

Notice the fringe of large islands bordering the whole southeastern shore of Asia; also that they are arranged in chains and groups curving outward from the mainland, thus forming large seas between this fringe and the continent. These islands mark a line of great volcanic action, but there are no active volcanoes in the interior of Asia.



- |                     |                         |
|---------------------|-------------------------|
| 1. Obi River.       | 21. Gulf of Siam.       |
| 2. Yenisei River.   | 22. Singapore.          |
| 3. Lake Baikal.     | 23. Strait of Malacca.  |
| 4. Lena River.      | 24. Bay of Bengal.      |
| 5. Kamchatka.       | 25. Brahmaputra River.  |
| 6. Sea of Okotsk.   | 26. Himalaya Mountains. |
| 7. Amoor River.     | 27. Kuenlun Mountains.  |
| 8. Vladivostok.     | 28. Calcutta.           |
| 9. Japan Sea.       | 29. Ganges River.       |
| 10. Tokio.          | 30. Ceylon.             |
| 11. Corea.          | 31. Bombay.             |
| 12. Yellow Sea.     | 32. Indus River.        |
| 13. Pekin.          | 33. Persian Gulf.       |
| 14. Hoang Ho River. | 34. Tigris River.       |
| 15. Yangtse River.  | 35. Euphrates River.    |
| 16. Shanghai.       | 36. Aden.               |
| 17. Formosa.        | 37. Red Sea.            |
| 18. Hongkong.       | 38. Asia Minor.         |
| 19. Canton.         | 39. Aral Sea.           |
| 20. Hainan.         | 40. Siberian Railway.   |

*The Amoor* forms part of the boundary between Siberia and China.

*Vladivostok* is the eastern terminus of the longest railroad in the world, reaching from St. Petersburg to this point, a distance of 6,666 miles. The Russian government is constructing this road. About 7,000 laborers are kept employed, and they are pushing the work from both ends. Rich deposits of hard coal have been found along the line of this road. The route marked on the map from Moscow to Vladivostok indicates the line as first projected, but instead of going around Lake Baikal the trains will be taken across the lake by ferry.

*Tokio* is about as large as Philadelphia and is more like a European city than are the other cities of the far East.

*Pekin* is supposed to be as large as Chicago, but the population of Chinese cities as set down in text-books is merely an estimate.

*The Hoang Ho*, sometimes called "China's Sorrow," is noted for its frequent and great floods. One in 1887 is said to have destroyed millions of lives.

*The Yang-tse-Kiang* is the most important river of China. It rivals the Mississippi in length, and considering the absence of railways in China, is probably of more commercial importance than the Mississippi now is. Because it connects so many important provinces and cities it is called "the girdle of China."

*Canton* is the principal city of southern China. Many of its people live in house boats on the river.

*Hong-Kong* belongs to Great Britain and is the chief commercial port of eastern Asia.



## IV.

## ASIA—CONTINUED.

*Singapore*, “Lion-town,” is near the equator; it belongs to Great Britain, and like most British ports has great commercial importance. Although it is a city of nearly a quarter of a million people, with good streets, lighted with gas, efficient police and other accessories of a modern city, yet on the average about one person a day is carried off from Singapore by tigers.

*The Brahmaputra* has a peculiar course. Running almost due east for nearly 900 miles parallel with the Himalaya Mountains, it finds a pass through this barrier and reverses its course, running west for about 500 miles. This river and the Ganges have a common mouth.

Not far from this great bend of the Brahmaputra is the greatest annual rainfall in the world, about forty-four feet—seventeen times as much as in Wisconsin—and about forty-two feet of it falls from April to September; seven feet a month, twenty-one inches a week, about three inches a day for half the year.

*Lassa*, in Tibet, is the sacred city of the Buddhists. It is supposed to have about 80,000 inhabitants. Europeans are not allowed to enter Tibet, but some explorers have gone there in disguise. During the nineteenth century only three Europeans, Manning, Hue, and Gabet have visited Lassa. This city is in the same latitude with New Orleans and with Cairo, Egypt, but has a climate like that of St. Petersburg.

*The Himalaya Mountains*, the highest in the world, rise abruptly from the low plain of the Ganges in an

almost unbroken wall, even the passes in which are from three to four miles high. Many of the peaks are 25,000 feet high; Mt. Everest, the highest, is 29,002 feet. It is impossible for men to live at an altitude much above 20,000 feet, hence these mountains are practically an impassible barrier. On the north the descent is not sudden, but a high plateau on which rest other great mountain chains stretches across all central Asia.

*Calcutta*, on the Hoogly, one of the mouths of the Ganges, is half as large as Chicago, and is the chief city of British India.

*The Ganges*, the sacred river of India, is the most frequented water way in the world. It is to India what the Mississippi was to America before the railroad era. Benares and Delhi are important cities in the basin of the Ganges. At Agra on the Jumna, is a mausoleum, the Taj Mahal, said to be the finest piece of architecture in the world. It required 20,000 workmen twenty-two years to build it.

*Ceylon* has a temperate climate although so near the equator. It has a great variety of population, from intelligent Europeans down to the lowest type of men to be found anywhere—human beings called Veddahs, who hide in the jungle, sleep in trees or caves, have but very feeble power of speech, and appear to be destitute of the instinct of worship or any idea of God. There is evidence that this island once contained half as many people as are now in the United States. Ceylon has recently become a rival of China in the production of tea.

*Bombay* is as big as St. Louis. From 1862 to 1865 it was the greatest cotton market in the world. Why?

*The Persian Gulf* is as large as the combined surface of the Great Lakes of North America. Into the head of it flow by a common mouth

*The Tigris* and *The Euphrates*, between which was the ancient land of Mesopotamia.

*Aden*, at the entrance to the Red Sea, is a strong military station owned by Great Britain; it is a station on the cable which connects England with Australia.

*The Red Sea* is commercially important in connection with the Suez Canal as part of the water route from western Europe to India and China. The article in the cyclopedia on

*The Suez Canal* will furnish valuable material for a lesson.

East of the Mediterranean lies Palestine, or the "Holy Land" of the Jews and Christians, now a part of Turkey. To the geographer, the most interesting feature of this region is

*The Dead Sea*, the surface of which is lower than that of any other body of water, about 1,300 feet below sea level.

Northeast of Palestine is Damascus, the oldest city in the world, population about 150,000, famous for the manufacture of swords. What is a damask rose?

*Asia Minor*, the prominent western projection of Asia, is thickly fringed with islands, and is more like Europe than any other part of Asia. It is a fruitful region which has been almost ruined by the harsh military rule of the Turks.

*The Caucasus Mountains* are the boundary between Asia and Europe. South of these mountains on the

Caspian, near Baku are the largest petroleum wells in the world, and this region is second only to western Pennsylvania in the aggregate output of the petroleum wells. The steamers on the Caspian use petroleum instead of coal.

## V.

### AFRICA.

On the map of Africa note the following facts:

(1) In shape it somewhat resembles what other grand division? It may be compared to a great foot, an uncouth clubfoot—with a toe at the southern extremity, the top of the thick ankle reaching from Cape Verde to the Strait of Gibraltar, and the heel at Cape Guardafui.

(2) Fully two-thirds of it lies north of the equator. It is the only continent\* which reaches across the torrid zone, and more than three-fourths of it lies in that zone.

(3) The unbroken coast line is a striking feature of Africa. The coast line is shorter in proportion to the area than in any other continent. The exploration, settlement and civilization of a continent are facilitated by coast indentations. The lack of these is one reason why Africa is so little known.

(4) Compare the size of Africa with the other continents, and note that it is second in rank. We do not know just how large it is. How little we know about it is shown from the fact that the area of Africa is variously estimated by geographers at from 9,500,000 to 11,600,000 square miles, leaving a difference in their es-

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\* Continent is here used in the sense which gives us six continents.



timates of an area equal to about thirty-seven states the size of Illinois. The reason is that the continent has neither been surveyed nor fully explored.

(5) The mountains are around the edge. The interior is mostly a high plateau; but south of the Atlas mountains there is a strip of low land, a chain of depressions about one hundred feet below the sea level. These depressions do not contain water. It is believed that were they flooded by means of a canal from the sea, the climate of a part of the northern edge of the Great Desert could thus be changed. Note the great size of the interior basin of this continent, and the large lake (Chad) and rivers which the basin contains.

(6) The Great Desert is about as large as the United States. Read what any recently published geography says about the desert, and correct the popular misconception that it is a level plain of loose sand. All the desert needs is water to make it fertile; this would not be true of a sand plain. There are hills and mountains in the desert, but they are not "upholstered," they consist of naked rock.

(7) Let the pupils decide from the presence or absence of rivers what parts of Africa have rain. Judging in this way they will probably make a mistake in regard to Egypt. It never rains in Egypt, yet it has the largest river of Africa. But the Nile flows in its lower course a distance of 1200 miles without receiving any tributary. In this it is peculiar among all the rivers of the world, and it is larger 1200 miles from its mouth than at its mouth. Why?

The periodic overflow of the Nile furnishes subject

matter for an interesting lesson, and most of our school geographies give a satisfactory presentation of it.

(8) Near the head of the Nile observe the group of great lakes. Lake Victoria, lying directly under the equator, is believed by some explorers to be as large as Lake Superior. It may turn out when this region is fully explored and surveyed that our great North American lakes do not contain half the fresh water of the world as heretofore believed.

(9) Two of the other great rivers have individual peculiarities worth noting. The striking thing about the Senegambia is that it rises near the coast, and flows inland, directly away from the ocean, for a distance of about a thousand miles, when making a great bend it flows into the ocean, having completed almost a semi-circle in its course.

(10) The Congo reminds us of the Mississippi in one respect; its numerous tributaries spread out in a fan shape as we go inland.

(11) Cairo, in Egypt, is in about the same latitude as New Orleans, and each is near the mouth of a large river. Each of these rivers has a delta mouth. What other points of similarity between the two rivers or the two cities can you see? What differences?

(12) Find a point near the coast of Africa which has latitude zero and longitude zero. Find a small country whose capital suggests the name of a President of the United States. This city is now one of the leading ports of the world for the shipment of coffee; both coffee and cotton grow wild on this part of the coast.

After the map is learned with reference to the dozen points noted

above, a few lessons on the climate and productions, and the claims of different European nations in Africa will be enough work to do in the study of this continent. A class which spends three months on the map of Europe and four or five months on North America should not spend more than a week on Africa.

## VI.

### AUSTRALIA.

This is the smallest of the continents, both in area and population, and the only one wholly south of the equator. It is about as large as the United States\* and belongs to England.

The most of Australia is a desert region, but the eastern and southeastern parts have a good climate and an enterprising population. Noticing the position of the mountains and bearing in mind that the trade winds prevail here (blowing from the southeast), it is not difficult to see that this part of the continent is the only part that has enough rain to make it fertile.

Australia somewhat resembles in shape the part of Africa north of the equator.

Extending for 1,200 miles parallel to the northeastern shore is the great barrier reef about thirty miles from the land. This is the longest coral reef in the world.

The lakes and rivers of Australia are unimportant, almost disappearing in the dry season. A central basin not drained into the ocean is found in the interior. The Murray and the Darling are the largest rivers, but in summer (December) they shrink to a chain of shallow ponds, hence they are little used for navigation. Notice

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\* It may be convenient for purposes of comparison to remember that the United States, (not including Alaska) Brazil, Australia and Sahara are about equal in size. Europe shorn of its fringe of peninsulas may be put in the same list. The Chinese Empire is a third larger than the United States.



that a mistake was made in naming these rivers like that which we found in the naming of the Mississippi and Missouri.

Australia has the largest trees in the world; but most of its forest area is covered with a stunted growth of small bushes.

*Melbourne*, the largest city of Australia, is as large as Boston, and Sidney is as large as Cleveland. Only three cities south of the equator have a population of over half a million. Which cities are they?

Most of the people of Australia are of British descent, hence the government is democratic, the language English, and the religion Protestant. The civilization is in all respects like that of Western Europe and North America. The Australians taught the English speaking peoples how to vote. Their method of transferring land titles is also a great improvement on ours.

*Tasmania* and *New Zealand* are neighboring islands which also belong to England. They have a temperate climate and a great variety of natural resources. New Zealand is almost as large as the British Islands.

A few lessons on the principal island groups of the Pacific and one or two on the West Indies should be given. In map study of islands fix on a few units of comparative area, for example, Borneo as big as Texas; Cuba equal to Tennessee, Hawaian Islands as large as Connecticut and Rhode Island.

In the large island groups, both in the East and West Indies, observe the prevalence of extended chains or rows usually curved, suggesting a submerged shore, the islands being the projections of the peaks and plateaus, the valleys being under water. Note also that island groups often seem to be a partially submerged projection from some peninsula. Illustrations: Malay Peninsula—Sumatra, Java. Kamchatka—Kurile Islands. Alaska—Aleutian Islands. Yucatan—Cuba. Hayti, Porto Rico.

After the foregoing lessons have been mastered the class should have a month's work in Mathematical or Astronomical Geography.



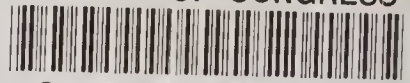








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